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THE PAPER TRADE JOURNAL.

"The Consumption of Paper is the Measure of a People's Culture."

VOLUME XXIV.—NO. 32. NEW YORK, AUGUST 10, 1895. WHOLE NUMBER 1110.

Trade Topics.

The Economizer.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY JAMES HALL.

Next in importance to having a good type of boiler for raising steam quickly and economically in connection with paper mills and other large works, is that of heating the water to its highest temperature before it goes into the boiler.

There was a time when it was the practice to pump cold water into the boiler, necessitating the burning of quite a pile of coal before the water would reach even the 212° at which it boiled; but that time has long gone by, and the genius of mechanical engineers has been exerted to the uttermost to discover the very best modes of heating the water to a high state of temperature before it shall enter the boiler at all; and when the water can be raised to a temperature of, say, 280° to 300° or more before the boiler gets it, a great point is gained—the steam is more quickly raised and its uniform pressure is more easily maintained.

The first step in this direction is to have a good hot well, situated in the most convenient part of the mill premises, for the ingress and egress of steam and water.

The best thing for this purpose is an old drying cylinder—one of the old-fashioned sort of about 5 or 6 feet in diameter, and as deep as you can get it. This should be let into the ground to about two-thirds of its depth, and provision should be made for supplying it with cold water.

Into this tank every particle of waste steam from the mill should be exhausted, that used in the drying of paper more particularly. No steam should be allowed to "blow into the air," but all of it should be utilized in heating the water in the hot well.

In a mill of two machines and upward there will be no difficulty, under proper management, in keeping the water at a boiling point. A great addition of cold water will not be needed, as the condensation will in itself supply quite a quantity.

The tank should be fitted with an overflow to carry off any surplus, so as to prevent it from running over. The boiler pump should be fixed in such a position as to enable it to draw its supplies for feeding purposes from this well; and an attentive stoker will very soon get into the habit of so regulating his valves as to make the supply and demand as near automatic as possible.

Then comes the "Economizer." This apparatus consists of a series of pipes, say 4 inches in diameter, about nine pipes in width and about twenty rows long, making 180 pipes in all, of 6 or 7 feet in depth, with suitable spaces between each single pipe and each row of pipes; and these, like a small regiment of soldiers, should be set in the main flue leading from the boilers to the chimney shaft.

The water from the hot well should be pumped through these pipes—which are connected by horizontal pipes top and bottom—on its way to the boilers. The heat in the flue is such as to quickly make these pipes red hot if they are empty, so that in coursing through them the water, which is at boiling point when it entered, will get to a very high temperature by the time it reaches the boilers, thus reducing in a very material way the cost of the coal consumption, and enabling the stoker to maintain his steam at a regular and uniform pressure.

By constant use these pipes are apt to get coated with soot and dust, which to a certain extent detracts from their heating capacity. This is obviated by the use of scrapers—circlets of iron band about 1 inch in depth, so arranged as to travel by a slow automatic motion up and down the pipes, keeping them perfectly clean for the reception of the heat passing through the flue.

When the "economizer" is put in position arrangements should be made to have a suitable space left underneath into which the dust and soot will fall when dislodged by the scrapers; and two or three manholes should be left at the front side of the flue for the purpose of raking out at stated periods the accumulation of rubbish brought down by the scrapers.

If these suggestions are properly and effectually carried out by the users of steam the latter will very soon reap a rich reward in the saving of coal, to say nothing of the greater regularity which they will experience in all of their working operations.

Electrolytic Process and Apparatus.

This invention relates to improvements in the electrolytic decomposition of aqueous or other solutions of salts or other soluble bodies. A type of such electrolytic processes is that in which an aqueous solution of sodium chloride is decomposed by an electric current to form on the one hand chlorine, and on the other caustic soda. In such electrolytic processes it is found that the electrolytic cell shows a considerable tendency to heat, and that as soon as a considerable degree of heat is manifested the electrolytic action becomes less effective, the electric energy being wasted apparently in the production of heat, instead of being to the same degree as at the outset utilized in the chemical decomposition.

The object of this invention is to prevent such heating of the cell, in order to prevent waste of electric energy to preserve the electrodes from injury and to facilitate or secure such electrical decomposition as a heated cell might impede or prevent.

To this end it provides for the artificial cooling of the electrolyte in the cell by maintaining a constant circulation of the electrolyte, continually drawing it off from the cell, passing it through a cooler and returning it to the cell, while at the same time maintaining it cool while in the cell by the application of cooling pipes within the cell.

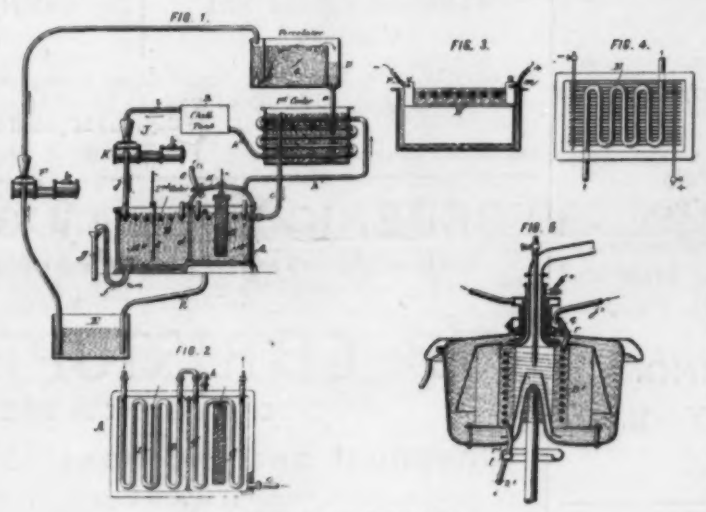
Figure 1 is a sectional elevation illustrating one embodiment of the apparatus. Fig. 2 is a plan view of the electrolytic cell shown in Fig. 1; Fig. 3 is a transverse section, and Fig. 4 is a plan, of a modified construction of electrolytic cell. Fig. 5 is a transverse mid-section showing the application to a centrifugal electrolytic cell.

The electrolytic cell as a whole is shown at A and the cooler at B. C is another cooler exterior to the cell; D is a percolating tank; E a receiving tank and F a pump.

Assuming that brine is to be electrolyzed, a mass of salt will be placed as shown at *s* in the percolator D, and the water or weak brine will be introduced into this percolator and caused to circulate, and the strong brine thus formed descends through a pipe, *a*, into the cooler C. This cooler consists of a tank or vessel traversed by pipes *b b* through which flows the cold liquid. The brine, entering by the pipe *a*, flows around these pipes and is cooled thereby, overflowing through a pipe, *c*, which conducts it into the electrolytic cell A.

The cell A consists of a vessel, preferably non-conducting, as earthenware for example, and divided by a porous partition, *d*, into two chambers, A' and A² respectively. The chamber A' contains the anode G, which may consist of a slab or carbon, as shown. This slab is inclosed by a cover H in order to confine the chlorine, which is generated in this chamber and which is taken out by a pipe, *e*. In the other chamber, A², is placed a cathode, I, which may consist of an iron plate. The anode and cathode may be supported in any usual or suitable way. The sodium hydrate generated in this chamber, A², falls to the bottom by reason of its greater specific gravity, and is conducted out by the pipe *f*, from which it overflows into a pipe, *g*. For maintaining a constant circulation of the electrolyte an overflow pipe, *h*, is applied to the cell, so that as fast as fresh electrolyte enters through the pipe *c*, an overflow is produced through the pipe *h*, the quantity overflowing equaling that which enters less the amount of decrease by decomposition.

For cooling the electrolyte in the cell A, a cooler, B, is applied thereto consisting of a pipe or equivalent vessel through which the cold liquid is circulated. A coil of pipe, as shown in Fig. 2, is employed. This coil is preferably placed near the surface of the electrolyte in order to come in contact with its warmest portions, and by cooling such



ELECTROLYTIC APPARATUS.

portions and thereby increasing their specific gravity, causing them to descend to the bottom of the cell, and thus instituting a circulation by which all of the electrolyte is kept cooled. The pipe *h* conducts the overflow from the cell into the receiving tank E. From this tank a suitably controlled pump, F, elevates it through a pipe, *i*, and returns it to the percolator D, as shown in Fig. 1. The pump F can be controlled by the level of the liquid in the tank E, fresh liquid being supplied from time to time either to the tank E or percolator D. By this means the circulation of the electrolyte is made continuous.

The coolers B and C may be cooled by circulating any cold fluid or medium through them. They are preferably made part of a cold brine circuit, J, as shown in Fig. 1, this circuit consisting of a circulating pump, K, a pipe, *j*, leading thence to the coil B, the latter coil, a pipe, *k*, leading thence to the coil *b* in the cooler C, a pipe, *k'*, leading from this coil to a chill tank, L, and finally a pipe, *l*, leading back to the pump K. The chill tank L is cooled by the vaporization or expansion of ammonia gas or other refrigerating medium.

The brine or other non-congealable liquid in the circuit J being thus cooled in the chill tank L, is pumped through the circuit continuously by the pump K, circulating first through the coil of the cooler B, so that it takes up heat from the electrolyte in the cell A, and being thus slightly increased in temperature, passes thence through the coil of the cooler C, where it takes up a further quantity of heat from the electrolyte in this cooler, the warmed brine then returning to the chill tank, where it is again cooled. By this means the electrolyte descending from the percolator or elevated tank D is first cooled in the cooler C, and is then discharged into the cell A, where it is again cooled to a lower temperature by the cooler B.

The cooler C should preferably be constructed so that the cooling medium will flow in one direction and the electrolyte to be cooled will flow past in the opposite direction.

A modified construction of electrolyzer is shown in Figs. 3 and 4. In this case the anode and cathode are subdivided into a great number of alternated plates, which may be of zinc and platinum respectively, and the cooling coil B is placed above the plates, as shown in Fig. 3. The anode plates are connected or coupled to a conducting bar, *m*, while the cathode plates are connected or coupled to a conducting bar, *p*. This particular construction of electrolyzer is well adapted for treating brine electrolytically to convert it into a bleaching solution of sodium hypochlorite. The electrolyte should be continuously circulated through the cell, flowing through the parallel spaces between the plates or electrodes.

Fig. 5 shows the application of the invention to the construction of a centrifugal electrolytic cell provided with a coil of pipe, B², so arranged as to be just outside of the cylindrical surface assumed by the liquid under centrifugal force, in order consequently to be immersed in the liquid of least specific gravity.

This coil is connected at one end by a pipe, *r*, to a trough or channel, *q*, while at its other end it terminates in a discharge pipe, *r'*, the liquid discharged from this pipe being caught by a stationary channel or gutter, *t*. This coil B² may be made part of the cold brine circuit J, the brine or other cold liquid being introduced by a pipe, *j'*, to the trough *q*, wherein it is held by centrifugal force, and by the same force is caused to flow through the coil B², being finally discharged by the pipe *r'* and caught by the gutter *t*, from which it flows off by the pipe *k²*. Thus a circulation of cold liquid is maintained through the coil or cooler B², by which the electrolyte in the centrifugal electrolytic cell is constantly cooled.

From Apprentice to Superintendent.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY B. F. FELLS.

There are some miscellaneous topics with which one must be familiar before he can say that he is equipped for the difficult task of managing a paper mill. One of these pertains to lubricating oils and lubrication. The best oil is the kind which not only lubricates a bearing effectively, but removes or washes away the fine particles of dust or worn off surfaces which constantly accumulate in all high speed surfaces. Extremely thin oil will of course flow readily and effect a thorough cleaning of the parts, but thin oil is sometimes inferior. In order to secure the proper consistency of oil it is advisable to sample oils. Few men are competent to place an order for just the right sort of oil on the basis of sample tests or the like. Actual tests in practice are more sure.

The writer has always found it more economical to have the agent of the oil firm leave a quantity of oil to test before ordering several barrels. The test can be accomplished in a brief period, and if the oil proves satisfactory and as represented a lot can be purchased. Much depends upon the use to which the oil is put. The plan of using one grade of oil for shafting, machinery, &c., has long been discarded, and special oils for each service are employed. For vertical flat sliding surfaces, as in engines where the oil is applied in drops, the most viscous classes of oils are best, while in bearings where there is opportunity for the oil to find a surface to cling to the thin grades are more efficient. Viscosity in oils is an element which causes the material to hold well to a surface. Vegetable oils are procured cheaply and the manufacturer is tempted to buy them, but they have a decided tendency to clog oil holes and gum the bearings, causing the parts to heat. Many sorts of animal oils cause the same difficulty.

It is not always well to rely upon the trade marks on some oil cans, for the reason that the contents may be all right under some conditions and not under others. Furthermore, the dealer is at times deceived as to the precise grade of the oils which he offers for sale and unconsciously offers the wrong kind. Inferior oil should be avoided. Many hundreds of dollars' worth of stock are frequently destroyed by a few oil drippings, and floors and ceilings become saturated with oil from the overflow of thin oil from bearings.

It is important for the would-be foreman to know the available strength of the soda ash which he uses, for it may become his duty to buy this chemical. The apparatus required to make an effective test of soda ash consists of one burette, 50 cubic centimetres in one-fifth; one holder for ditto; one 100 cubic centimetres graduated measure; one litre measure; one box of scales and weights to weigh to one-tenth of a grain; one boiling flask; one filtering funnel and filter paper; one spirit lamp; one retort and a gauge. Weigh out carefully 171 grains of the ash, dissolve it in distilled water, pour it into the 100 cubic centimetre measure and make up to 100 cubic centimetres with distilled water; pour this solution into a bottle and add to it another 100 cubic centimetres of distilled water. Every cubic centimetre of this solution contains half a grain of oxide of sodium, and from this the proportionate strength of the substance can be estimated.

During the period of apprenticeship one has a good chance to benefit from the failings of others. It was once considered well enough when lining a digester to apply the cement without much care as to science. An apprentice has a chance to assist at this work, and if he is observing it will not take him long to find out that a good union of new cement to old cannot be made. A man ought to be something of a mason before trying to line a digester.

The importance of having a digester correctly lined is very great. Bad work can often be traced to defective lining of digesters, and bad work means imperfect goods. There are seconds enough in the paper market now without making more. Yet seconds are made almost daily in all mills. In some cases the making of a limited number of seconds cannot be helped because of defective machinery, poor pulp stock and similar conditions. In other cases the seconds are the result of carelessness on the part of the operatives. Seconds, although the cost of making them is the same as perfect products, and although just as good stock is in them, have to be sold at a discount. The annual loss in this way to the paper manufacturer is something to be considered. Hence the foreman who can produce stock with the least number of seconds is preferred by mill owners.

In lining a digester with either cement or tile a good grade of material should be used, even if expensive, and only practiced workmen should be set to work at the job. The sand employed in making the cement should be clear from foreign substances, especially iron. The cement cannot set well if vegetable matter is present. Silicate of soda helps to set the cement, but should not be resorted to unless the work is to be hurried. Don't apply new cement to surfaces without wetting them. The plan of roughening the old surface is advisable, for it gives the cement a better hold.

In many mills where the floorings were built years ago the owners have thrown out the old machinery and purchased new.

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The new machines weigh more as a rule, and so the floor begins to sink in places just as soon as the extra weight is put upon it. The effect is felt upon some machines. About the only way is to level up the low places by inserting pieces of wood or leather between the braces of the frames and the floor. It will not do to cut down the high places, as that would ruin the flooring. If the floor can be raised where sunken, the best way is to elevate it by the use of jack screws and insert posts or braces below. To do good work machinery must be level.

It can be seen that the modern superintendent is required to know a great deal besides bossing. He is not expected to be a workman, but unless he is pretty familiar with the process, so that he may distinguish the difference between good and bad, he doesn't stand much of a show in the work to-day. Manufacturers usually employ men who take an interest in having the work go well; but all are likely to become more or less careless, and unless there is a man who keeps his eye on the work there will be some shirking, and the "super" is the man for this, and in order that he may do it advantageously he must not be a novice. He cannot very well superintend if he doesn't know how to tell good work from bad. Perhaps it would be well to look into this matter, because it means many dollars to the manufacturer.

Good stock is frequently so poorly handled that the product from it is inferior. The great thing is to keep every machine and process in order, and just as soon as any part begins to show wear and becomes loose or damaged it should be replaced or repaired. It is needless to go into particulars in this connection, for anyone who is acquainted with the running adjustments of paper machinery will understand the force of the remarks and will be able to make the applications.

Bad work is often due to a wrongly adjusted driving belt. For example, if the belt is tight it takes hold so very suddenly that it starts the mechanism with a jerk, and so causes irregular output from the machine; while on the other hand, if the driving belt is loose, then, while it is quite possible that the mechanism may open up its motion all right, and start off well without any jerking or pulling, yet before it has got far on its way the power is intermittent and the slipping belt works very uncertainly and is very liable to slow jerks and changes. In either case the result is equally undesirable and fatal to the condition and perfection of the product. Thus science and care in the adjustment of paper machinery are elements for the apprentice to consider.

(To be continued.)

What is meant when it is said that steam has "had four expansions" is that it has been expanded to four times its original volume, and in this sense, when steam has had one expansion, it would have been expanded to one time its original volume, which involves no change of volume at all. It is more correct to say that the "ratio of expansion" is four than that "four expansions are used," or that the steam is "expanded four times," but the latter expressions are in common use and will lead to no misunderstanding if by common agreement they are always used to signify the same thing.—*Power*.

Correspondence.

CHICAGO.

[FROM OUR REGULAR CORRESPONDENT.]

WESTERN OFFICE PAPER TRADE JOURNAL,
56 and 58 La Salle Street,
CHICAGO, August 7, 1895.

There is absolutely no change in the general business situation, so far as the Chicago paper trade is concerned. The summer is running its course and business is simmering along about as well as could be expected for the season. Some leading men say "quiet"—"no snap to trade," while others say "picking up, although it is only summer." These, however, are only individual expressions, which balance each other and so go to make up the average. There is quite a general agreement that things are in far better condition than at the same time a year ago, and, in fact, as good as usual in midsummer. In several directions a hardening of prices is noted, and all are looking forward to a good fall trade. Abundant crops seem to be assured now, and besides there is a feeling in the air that brisk times are close at hand, which, of itself, is half of the battle.

Higher prices have not reached us yet, although, as above stated, there is some tendency in that direction, but the volume of trade is larger than is usually found at this season. This is accounted for partly by the fact that many publishing houses now do a great deal of work in the summer which used to be deferred until fall; but chiefly by increased demand all along the line. There is a good deal of figuring just at this time, too, upon catalogue work, which is quite an item in the aggregate. Taken altogether nobody has any great deal of fault to find with the general condition of the trade as it stands to-day.

The print market, according to the authority so frequently quoted (and he always, by the way, knows what he is talking about) is in good shape. This gentleman the other day said: "The situation is the same as I gave it to you two weeks ago, only more accentuated. Water conditions are getting worse; pulp is scarce and is getting scarcer every day, consequently prices are stiffening."

Book paper continues to be the "weak sister" of the market, so far as regards prices. One who handles these goods largely says: "All-stock book is selling for less money to-day than we used to get (only a short time ago, too) for an article made partly of ground wood. The demand for all-stock has increased, but not the price. Half-tone work, now so popular, has greatly increased the demand for super-calendered over machine-finished.

"A good deal of Eastern book is now coming to this market. If Western mills do not get more water soon this may prove a serious complication for them."

Another book man—a mill representative and thoroughly familiar with his subject—had this to say in a late interview: "There is a spurt right now, as there always is immediately after the first of a month. Business is fairly good, however, spurt or no spurt.

"The cut in book papers may be largely accounted for in this way: Many mills, particularly in the East, which, although equipped for making book, had been pursuing other lines, and quite a number of new mills, built for the purpose, have lately gone into the manufacture of book, both S. & S. C. and M. F. Finding the Eastern mills which have been making book papers right along to be so closely in touch with the trade there as to leave little or no opening, the representatives of these new, or newly converted, mills have come West, an additional incentive to such move being the impression that the Western supply of book had been greatly diminished by the shortness of water in the Fox River district. In this calculation, however, these Eastern representatives find themselves disappointed, for the reason that comparatively little of our quota of book paper has come from that section, and that consequently the bad water conditions prevailing there have only comparatively small effect upon the book market here. In the face of such a situation these gentlemen have become more or less 'demoralized,' and falling an easy prey to buyers who are ever ready to 'bear' prices, have thrown their stuff upon the market for whatever they could get.

"It is to be hoped that the manufacturers concerned will soon find out the true condition of affairs, and cease making Chicago the battleground in a useless, profitless war. When that time comes book papers in this market will command something like their legitimate prices."

It may be remarked, parenthetically, that the gentleman just quoted has gone a long way toward solving the problem propounded in this connection in my last letter.

Coarse papers of almost every description are selling quite freely, and in several cases a substantial stiffening of prices is noted. Even where prices rule low they are firm. There are several houses in town, both agents and jobbers, the bulk of whose trade is in coarse papers, and very few "kickers" are to be found among them.

As foreshadowed in my last letter, the long pending negotiations among the strawboard manufacturers of the country have been satisfactorily concluded, and a binding agreement is now in force.

J. H. Swinarton, second vice-president and manager of the American Straw Board Company, and president of the new distributing company, the Standard, authorizes the following statement:

The Standard Straw Board Company will open its doors for business (its office being in New York city) on August 15. The original intention was to open on August 1, but by unanimous consent of the parties in interest the additional two weeks' time was granted in order to give the officers ample opportunity to get the necessary books ready, to make proper arrangements for receiving the product of the several mills, and to have everything in shape for carrying on the business.

Mr. Swinarton is positive in his declaration that there will be no further advance in prices. The interests of consumers (the box makers) have been kept constantly in view, and as they make their contracts for supplying storekeepers and others for a year ahead, an increase in price of material from time to time would be disastrous to their business.

The scale of prices adopted may, as Mr. Swinarton says, work slight inconvenience for some of the box makers, but the nature of the case was such that a virtually permanent scale had to be adopted at once. It is believed, moreover, that most of the box makers have sufficiently protected themselves by laying in before the new scale went into effect a sufficient supply of boards at the old low prices to last until January 1. Prices from that time on will be the same as now, even if they do not go lower. There are to be no exorbitant charges. The present schedule is gauged to make fair profits only—not "big money," the day for which is past. "The old Union Straw Board Company," said Mr. Swinarton, "sold board at $40 to $45 a ton, but it is not probable that any man now living will ever see it above $30, the present price. It may go lower, but never higher."

Mr. Swinarton expresses great confidence in the directors of the Standard Company, who are all practical business men and manufacturers, chosen with special reference to their fitness for the position.

The board, as a whole, is strong, and with President Swinarton at its head, may be counted upon to inaugurate an era of prosperity to all engaged in the great strawboard industry.

Many attempts have been made during the past year and a half to combine the strawboard makers, but all efforts came to naught until this deal—the creation of the Standard Company—was conceived at a meeting held on April 5, Mr. Swinarton being the father of the company. The period of gestation was short; for the child was born, as stated in a former letter, when the Standard Straw Board Company was organized on June 9. The youngster soon threw off swaddling clothes, and has since done some pretty good work by way of "pulling himself together," so to speak. On August 15 he will assume the full duties and responsibilities of strong and lusty manhood. Proud, indeed, must be the happy father of this vigorous youth, and proud he deserves to be!

There having been some fluctuation in the figures for strawboard shares on the stock market last week the Chicago *Tribune* printed the following item of news (sic?) in its issue of Saturday.

"The Western Board Paper Company is being organized, and promises to cut an important figure in the strawboard situation. It is to be a close corporation. The Armours, Swift & Co., and Morris & Co. are behind the scheme, and in addition to the big packers there are a number of prominent local paper dealers. The secret of the packers' interests in the enterprise lies in the fact that the company is to make strawboard by a new process and from material that has never before been so utilized. The company controls the patents on a process for making strawboard out of the material taken from the stomachs of cattle after their slaughter. The system has been thoroughly tested, and it has been demonstrated to the satisfaction of the big packers that it is an entire success. A contract has just been closed between the company and the packing firms of Armour & Co., Swift & Co., and Morris & Co., for the entire refuse of this character from their plants. A site for the factory has already been purchased, and it is expected the company will be turning out strawboard in a comparatively short time. The operations are not to be confined to the Chicago stock yards. Similar contracts are being made with the packers at Omaha and Kansas City, and strawboard mills will be erected there. The Chicago house will have a capacity of 100 tons a day. The contract which the company has made with the packers runs for five years. It has been demonstrated that strawboard of a first-class quality can be made from this material at a cost of $4 or $5 a ton cheaper than it can possibly be made in the usual way. The new company will not be in the strawboard combination, and the indications are that it will be a menace to that combination. The people who are behind it, however, are not men who will desire to sell the product of their factory any cheaper than necessary, and it is presumable they will be ready enough to go into a combination after they have shown their hands sufficiently to force what they will consider proper recognition in the pool."

Now this is nothing more nor less than the "paunch mill" enterprise, first mentioned in this correspondence some months ago, and referred to without any flourish of trumpets several times since.

Various members of the paper trade, commenting on the *Tribune* article, smiled at the inaccuracies and exaggerations contained therein. As for the "American" and "Standard" people, they do not seem to be the least alarmed at the appearance of this new Richmond in the field, but are going right on in the even tenor of their way as though nothing had happened or was about to happen.

The undertaking of the Western Paper Board Company, however, seems to be perfectly feasible, and is reported to have some heavy men behind it.

Mr. Bird, who has been the soul of the enterprise from its inception, tells me that plans are being prepared by A. B. Tower & Co., of Holyoke, and that contracts for machinery are expected to be let during this month. Mr. Bird expects the company to be in full operation by January. How much "stuff" it may be able to handle, or how great a factor it may prove to be in box board situation time—and not a very long time either—will show.

The Pioneer Paper Stock Company, whose removal into its rebuilt home was noted in a former letter, is running smoothly. Everything about the place is new, but works without a hitch. Business is increasing and is expected to increase yet more in the near future. It is confidently asserted, and may readily be believed, that no establishment of its kind in the country has better facilities for receiving or delivering goods in large quantities, and certainly there are no people in the country more worthy of liberal patronage than those in charge of the "Pioneer."

W. C. Gillett, A. T. Hodge and George D. Forrest have bought the interest of C. D. Mead, late president of the Chicago Paper Company, and that concern is now a "close corporation," owned entirely by the three gentlemen first named. Mr. Gillett succeeds to the presidency, Mr. Hodge remaining vice-president and Mr. Forrest secretary, as before. As for the office of treasurer and manager, formerly held by Mr. Gillett, it seems either to have been abolished or else left in abeyance for want

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of a man to fill it; at all events it does not figure upon the office stationery.

This consummation, the absorption of all of the stock of the concern by the "Noble Three," is understood to have long been a cherished object on the part of each and all of them, and their many friends in the trade will rejoice with them that it has been accomplished at last.

Even those mills which have, or think they have, all of the connections they want would do well to bear in mind that the commission house of Scott & O'Meara is giving satisfaction to its clients. The firm is composed of wide-awake men who have achieved the valuable reputation of scrutinizing closely the credits of those to whom they sell. The buyers themselves like this way of doing business, and the lines of Scott & O'Meara are accordingly reaching out further and further at both ends.

J. W. Butler, president of the well-known paper company bearing his name, is enjoying the pleasant summer weather at his beautiful summer home on Fox River—not the Wisconsin "Fox," where many paper makers are having such tribulations just now—but the Illinois Fox, rising, it is true, on the other side of the Wisconsin line, and fed by Fox and Geneva lakes, but flowing mostly through Illinois soil. It is a fine stream, and its banks are lined with fine towns—Batavia, Geneva, St. Charles, Elgin, Aurora and Ottawa among them, the last named being at its junction with the Illinois River. Mr. Butler's summer residence is near St. Charles, and there, in the ripeness of his years, he deservedly "dwelleth contentedly under his own vine and fig tree."

C. F. Mather Smith, to make amends for not taking any actual vacation this summer, is putting in his spare time playing golf. In order to be near the course Mr. Smith has taken a room for the season at the Chicago Golf Club at Gobeaton, a few miles out, and thither he hies him every afternoon as soon as he can get away from business. He thinks that golf is the most invigorating of all athletic sports, and says that everybody ought to play it.

Perry Krus, president of the Pioneer Paper Stock Company, who had been quite out of sorts for some time, has recently taken a two weeks' vacation near South Haven, Mich., and has come back in first-class condition, looking several years younger.

W. D. Messinger has returned from a somewhat protracted outing on the New England coast "rested up" and much improved in health.

M. J. Fitch has had another tussle with his arch enemy, inflammatory rheumatism, since his recent return from Mineral Springs, Ind. This has afforded Mr. Fitch another "vacation," as he euphemistically terms it, which he seems to have improved to the knocking out of the enemy, inasmuch as he has come back to business looking remarkably well and in excellent spirits.

Alexander F. Flinsch, Jr., representing Ferdinand Flinsch, of the Weesenstein Papier Fabrik, near Dresden, Saxony, was in Chicago last week. Mr. Flinsch is making a tour of the West and Northwest for the purpose of introducing copying papers, cigarette papers, colored tissues and other goods of fine grade only, produced by his good old house. He expressed himself, when seen, as deeply impressed by the vastness of this great American country, and as delighted with the treatment he has received and the success attained since landing on its shores.

Other traveling men of the trade in town since my last letter were: C. H. Davenport, of the Connecticut River Paper Company, and E. M. Phelps, of the Parsons Paper Company, both of Holyoke; James Wallace, of the Hampshire Paper Company, South Hadley Falls, Mass.; Mr. Bardeen, of Crane Brothers, Westfield, Mass.; A. N. Emden, of the Tension Envelope Company, and C. C. Woolworth, of Woolworth & Graham, both of New York; W. N. Chapin, of the Ticonderoga Paper and Pulp Company, Ticonderoga, N. Y.; Mr. Brown, of the Franklin Paper Company, and Mr. Anderson, of the Eagle Paper Company, both of Franklin, Ohio; J. F. Gabriel, of the Champion Paper Cutter Company, Piqua, Ohio; C. W. Young, of the White Paper Company, Dayton; A. B. Mudgett, of the Tytus-Gardner Paper Manufacturing Company, Middletown, Ohio; R. E. Ballard, of the Scharf Tag, Label and Box Company, Ypsilanti, Mich.; Mr. Paul, of the Paul Paper Company, and Geo. A. Whiting, both of Menasha, Wis., and A. W. Patten, president of the Patten Paper Company, and E. A. D. Reynolds, of the Fox River Paper Company, both of Appleton.

R. B. D.

MIAMI VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, August 7, 1895.

Generally speaking, trade is uniformly fair in the Miami Valley. There has been a slight impetus in the price of news, but book papers remain curiously dormant. Regarding the embarrassing situation in the Wisconsin district, while it is an unexpected factor in favor of the trade in other sections, it seems as yet to have wrought only a meagre change. However, it is expected that conditions will alter materially ere the passing of another fortnight, even if the situation in the Northwest is bettered 100 per cent. Just now the Ohio and Eastern manufacturers are passing through the test era, and it cannot be more than a week or so before another commercial phase shall succeed that of the immediate past and present.

If the average mill man doubts the serious situation of the paper stock men—the rag merchants referred to particularly—he should simply make inquiries of any of the local dealers. One of the best known dealers in the valley, who has conducted business for years, and has weathered many storms personally, while the firm which he represents has withstood the "fickleness" of trade for over a decade, is authority for the statement that the rag trade has gone to the "bow-wows"—that portion of it which is now left to the merciless trade axe. His statements are corroborated by others who are in a position to know through personal interest and solicitation. Just at this time there is little, if any, demand for any quality of rags, except probably whites. There is a prevailing scarcity of water, and as the bleaching process includes "several changes" and an almost unlimited supply, a listless market is the result. Then "soft pulp" is proving a formidable factor for many grades and serves the purpose similarly in a great number of instances.

Dayton manufacturers, and, in short, almost the entire number in the valley, secure coal for $1.50 to $1.75 per ton, as compared with the enormous rate of $3.20—a little more or less—in the Wisconsin districts. If this is not a palpable difference which will mirror its effect in the not far distant future, the Miami Valleyite misses his guess. Steam is mightily nauseating to the Northwesterners, especially when a much boasted natural advantage has been transformed into a much detested disadvantage. Such is life on this mundane sphere. To a great extent business is like marriage—purely a lottery of the Simonpure "Puerto Cortez, Honduras, C. A.," stripe; Class A, at that.

Returning to the question of rags, so abruptly ended by the mention of coal, would it not be a capital idea to form a rag combination? One thing is assured, dealers in domestics are thoroughly exercised over the situation, and it is quite likely that unless the horizon brightens with some rapidity some sort of combined or united action will be taken. A combination simply in the way of maintaining a substantial price, as firmly permanent as the price of marketable goods can be made without approaching the ridiculous at perilous times, is strongly hinted at. There is no authority for the statement that action will begin in this valley, but suffice it to say there may be several strong advocates of a movement in that dull but time-honored business.

Your correspondent neglected to mention last week the marriage of Catherine Salisbury to Dr. P. N. Adams, one of the leading stockholders in the Greenfield (Ind) straw plant, distinctively a Dayton enterprise. The doctor is advancing into the shades of forty-two, and never performed a more blissful act in his life than to select a beautiful and refined young lady as a lifelong helpmate. On the day of the wedding Dr. Adams incidentally "dropped into" the Salisbury home while over his route in the East End, where the ceremony was performed by the Rev. Dr. Dwight Marfield, of Grace Church, Avondale, and after the nuptial event he unconcernedly drove at once to another suburb to visit his patients, escorting his wife while en route to her new home on Fourth street. This residence was recently erected, and while the knowing ones expected a happy union the event was a surprise and stirred society to its foundations. After accidentally being the first to meet the new bride, and after tipping our society man on a thorough "scoop," I cannot understand how this pleasant item escaped my correspondence last week. Dr. Adams remarked that his cellar was filled with the "right stuff," yet I declined on plea of business—but this only adds to the confusion.

While in St. Louis this week I had the pleasure of meeting W. M. Hayner, manager of the Dr. Harter Medicine Company. He told me a few things which may interest the paper manufacturer, but if they do not no harm is done. The Harter Company consumes many carloads of paper annually. Besides that used in the arrangement of packages, a vast quantity is necessarily required in the publication of the company's popular almanacs. Mr. Hayner has just ordered fourteen carload lots and will increase the number to thirty-eight later. Each year there are over 20,000,000 printed pieces, all forms and sizes, distributed throughout this country and abroad.

It may be a matter of congratulation to the local men to learn that this immense contract was awarded this year to the Winters Art Lithographing Company, of Springfield, an enterprise in which the late Judge Winters was interested. It is thought that other Daytonians are financially concerned. Considering that there was a list of 200 competiting bids, the recognition of the valley is notable.

The Harter Company this week removed its plant to Dayton from St. Louis, and will be located at First and Canal streets, in a large building across the way from the Dayton Paper Novelty Company. This addition to Dayton will prove material in every way, especially as an advertising medium, for the company's printed matter is scattered the length and breadth of the continent. The company's postage expenses for a single year are something like $40,000, about the same as that of the National Cash Register Works, of this city.

In connection with the removal of the Harter Company, which was accompanied by a great flourish of American genius in the way of attracting the attention of Missouri, Illinois, Indiana and Ohio in an unique manner, comes the Hayner Distilling Company, owned by the manager of the Harter Company. Both firms will transact a running business of nearly $800,000, the monthly balance sheets actually making a showing of that substantial character. Mr. Hayner erected a handsome, cream colored, pressed brick front building five stories in height, with basement, next to the Aull Brothers Paper Company. In short, the structure is an exact duplicate of the Aull Brothers' factory and joins it with a party wall. When the ironwork is painted the same color as that of the Aull Brothers' it will prove absolutely necessary for Treasurer Baer to "reform and swear off," or there may be a case of mistaken identity of buildings. A distillery shipping office next to a paper concern is one of the rarest of Miami Valley oddities.

Those who are acquainted with the location of that territory will be unanimous in the assertion that the vacant space west of these factories will soon be occupied. This means a solid block of handsome buildings in a quarter on Fifth street which two years ago was a receptacle for ashes and refuse. The factory of the Gem Shirt Company was one of the first improvements.

The National Cash Register Company's baseball team defeated the "Has Beens," an organization composed of young paper trade men and newspaper managers and editors, on Saturday by a score of 14 to 11. The contest was for the benefit of an injured member of the first named club.

Harry Shelby, foreman of the Reynolds & Reynolds Company, while crossing Third street the other afternoon on a wheel, was struck by an electric car and carried a considerable distance on the fender, which saved his life. Another car going in a different direction passed just as the accident took place, and there was no possible chance for escape. He was injured, although not seriously.

Judge Murphy has overruled the motion of the Ada Coal Company to order the trustee of the Middletown Paper Company to bring a suit against the Merchants' National Bank on two checks aggregating $18,000 wrongfully paid out. The judge ordered the assignee of C. F. Gunckel to pay $10,400 to the Merchants' National Bank, as secured by mortgage on a portion of the homestead real estate of Mr. Gunckel.

The answer and cross-petition of Henry Amt, in the case of the First National Bank of Lockland against C. F. Gunckel and others, revives the memories of the once powerful Middletown Paper Company. Mr. Amt claims that he now owns ten shares of preferred stock in that company, for which he paid $1,000, and that the certificate provided that he was entitled to receive an 8 per cent. dividend of the profits of the company in preference to the owners of common stock. He cites an agreement by which the company within three years after November 12, 1892, agreed to buy the stock at par, and in which he has agreed to sell at par. He says that the company is now hopelessly insolvent and has made an assignment, and that the property of the company is in the possession of W. H. Todhunter, as trustee. He claims to have received no dividend since October 8, 1893, and now demands to surrender up his stock and to resell the same as stipulated in said agreement for $1,000, the same to stand as a debt against the company and against the assets of the trustee. He asks that the court shall declare in accordance with the agreement.

Extensive improvements are in progress at the Fordham plant of the Louis Snider's Sons Paper Company. On Saturday the mills of the company will be offered for sale. I am told that an immediate sale is not anticipated.

M. V.

FOX RIVER VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., August 6, 1895.

Nothing has happened as yet to relieve the manufacturers on this river from their suspense. All wheels remain closed down, as in the past, since the restraining order went into effect. In a private letter to an Appleton gentleman General Doe states that he has ordered the Government engineers to make measurements of the amount of water going into the lake, and as soon as their report reaches him he will be prepared to make a decision in the case.

It is understood on good authority that General Doe is disposed to do what he consistently can for the manufacturers after the interests of navigation are protected. If he finds that sufficient water is going into the lake so that a part of it can be stored and a part given to the manufacturers he will be in favor of so doing. He naturally feels that the interest of the Government is primarily for the good of navigation; but if navigation can be preserved and a surplus of water remains he will be willing that it should be drawn for manufacturing purposes.

It is reported from Oshkosh that the Government engineers are already engaged upon the duty of making the necessary measurements, and it is hoped that a final decision in the matter can be reached before many more days have passed.

The attitude of General Doe, as outlined above, according to recent events, does not seem to be shared by his subordinates in Milwaukee and Oshkosh. So far as the manufacturers can judge, their disposition has all along and invariably been to antagonize the manufacturing interests as much as they dared. General Doe, upon his late visit here, granted permission to the Appleton Edison Light Company to use enough water to light the city of Appleton. This morning, however, the company received a message from Oshkosh saying that Captain Palfrey, in Milwaukee, had ordered the company to cease the use of any water for such purpose and to put in its headgates. The company has written that it will disregard the order, believing that it is in the right in so doing according to the terms of the permission given by General Doe. Last Friday night between 10 and 11 o'clock all of the water in the Government canal, from which the company takes its water, was drawn off, which could not have been done, except under instructions to do so, thus compelling the company to cease operations and leaving the city in darkness. Things like this show the animus of the subordinate officers, which seems to savor of contemptibleness as well as hostility.

When General Doe was here many of the manufacturers and water power men who met him were surprised that a stranger should have such apparently accurate foreknowledge of what he might expect to find, not only as regards the history of the Government work upon the river and its relation to manufacturing, but also of the exact present condition of the river and its bearing upon navigation and manufacturing. The way that General Doe handled the public meeting in this city was indicative not so much of any lack of information as to matters in hand as to his desire to hear what the manufacturers had to say. This phase of the matter was commented upon not a little at the time. Your correspondent is informed upon reliable authority that General Doe was thoroughly posted upon all points of the controversy before setting foot in this region, his information coming through a special secret agent of the Government who went through this valley a week or two before his principal was to arrive.

A representative of an Appleton manufacturing concern, which deals almost exclusively with the paper manufacturers, returned last week from a trip to the East. He says that the paper men there are covertly, at least, rejoicing in the perplexities which have fallen upon the Fox River Valley, and that they propose to take what advantage they can of the situation here. While this feeling may be only natural, and while it may not be so generally or strongly felt as it seemed to appear to the gentleman in question, it may be stated that manufacturers here will not feel greatly alarmed over it. Many of the largest mills are running right along as if nothing had happened, under steam power, and the others which are now idle almost without exception will in the course of two or three weeks at the most be provided with engines, so that even the present curtailment of production will be made up, and in the course of time even more than made up, as the mills will be able to do more in proportion with their engines than they could with water power alone. Whatever advantage the East has at present, therefore, will be very short-lived.

The boiler house for the Kimberly & Clark Company's mills in this city has been completed, and the engine and boilers have ar-

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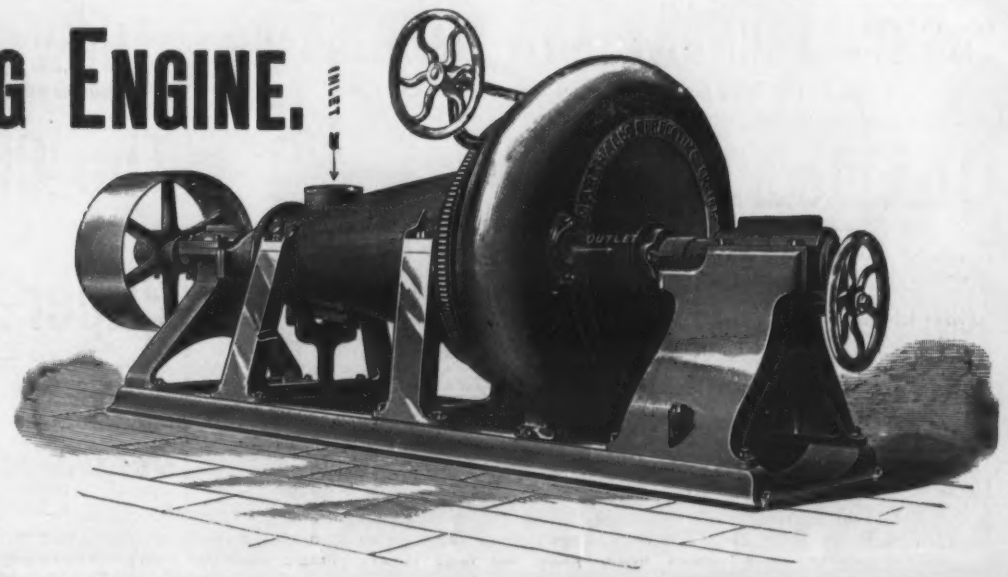

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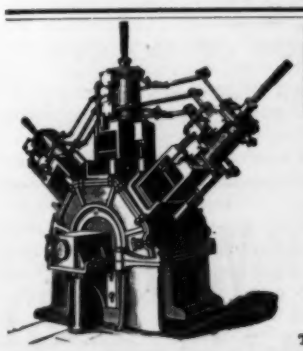
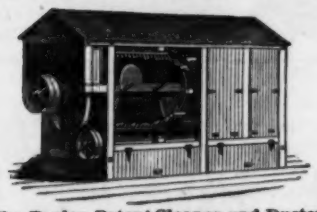
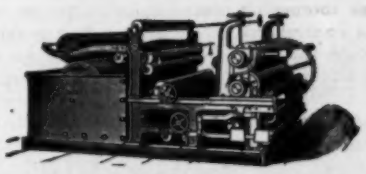
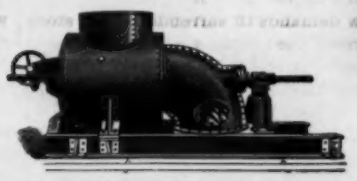




The Taylor Patent Cleaner and Duster.





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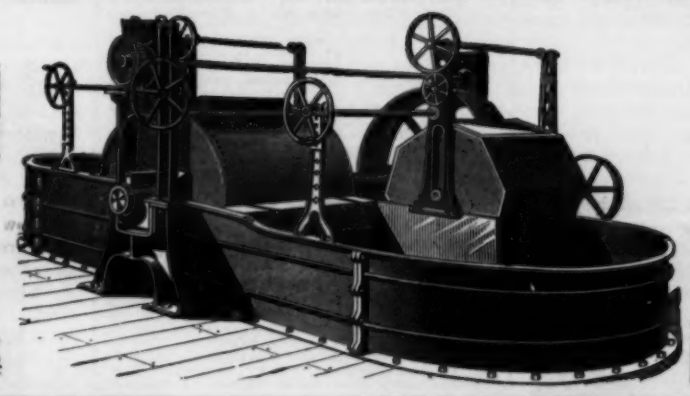
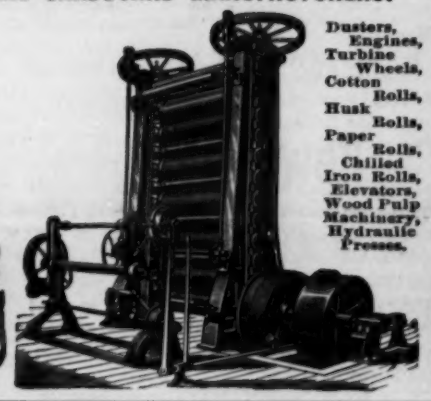
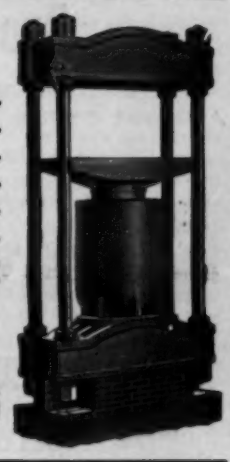




Dusters, Engines, Turbine Wheels, Cotton Rolls, Husk Rolls, Paper Rolls, Chilled Iron Rolls, Elevators, Wood Pulp Machinery, Hydraulic Presses.



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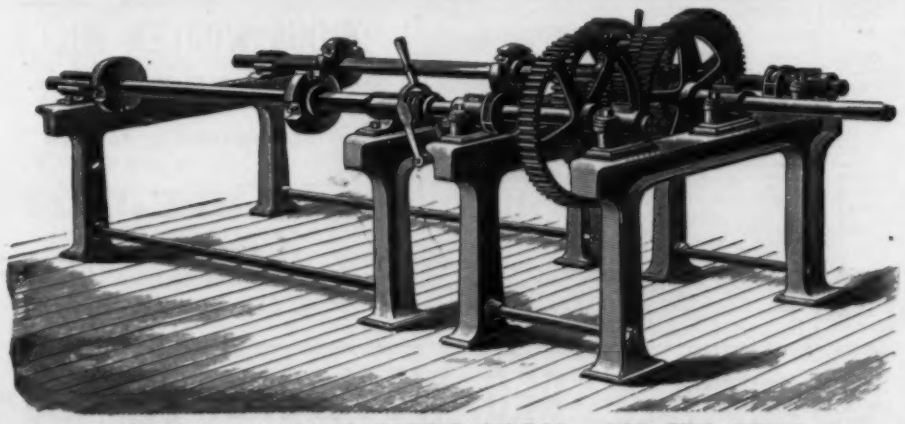

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That every *New England Pulp Grinder* ever made or sold in this country has been designed, built, and first sold by me; and I am sole owner of the right to use the name "New England" as applied to a pulp grinder, as the United States Patent Office records will show, and no other person is or has ever been interested with me in the manufacture of Pulp Machinery.

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Can furnish any of the leading *Turbine Water Wheels*, fifteen styles *Pulp Grinders, Noiseless Screens, Wet Presses, Sawing Machines, Barkers, Splitters, Pumps, Shafting, Mortise Gears, Pulleys, &c.*

Remember you can have a *guaranty* of the *cost* of *your mill*; also of the *cost per ton to manufacture the pulp.* Liberal terms.

I have on hand *six Pulp Grinders*, three pockets, to grind wood 17 inches long; and *eight Grinders*, heavy pattern, to grind wood 24 inches long; also *Barkers* and *Splitters.*

Many of the old style New England grinders can be rebuilt so as to greatly improve them.

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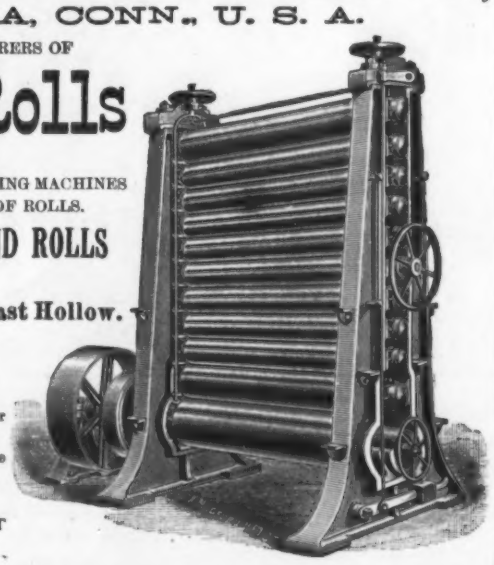

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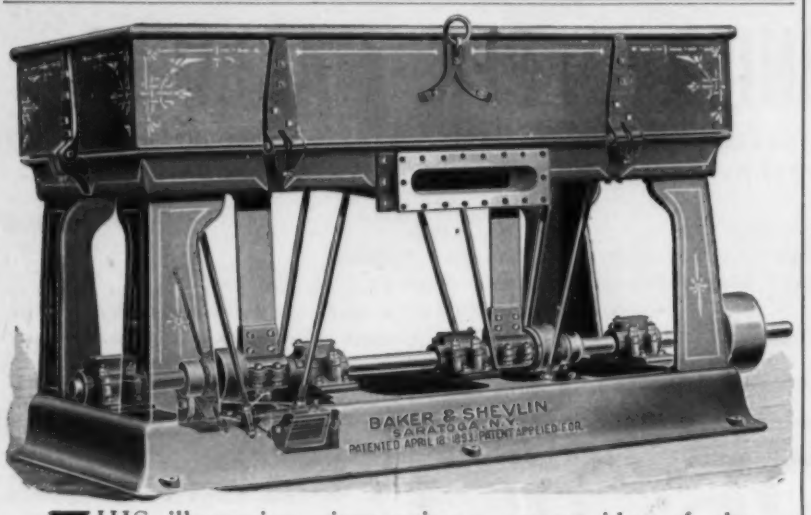

THIS illustration gives quite a correct idea of the mechanism and appearance of our **BELLOWS SCREEN,** which is the best to be found the world over.

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CONTENTS.

INTRODUCTION.

General Laws of Chemistry; Principles of Chemical Physics; Chemical Arithmetic.

PART I.

General Chemistry.—With a short account of each element and its principal compounds; source, manufacture and properties of such compounds as are used in paper making.

PART II.

CHAPTER I.—**Cellulose.** Its chemical and physical properties, chemical relations and reactions.

CHAPTER II.—**Fibres.** Cellulose in its relations to the plant; the vegetable cell; the cell wall; changes which occur in the cell wall; lignin or incrusting matter; its chemical properties; characteristic markings of the cell wall in different fibres; characteristic cells other than fibres in different pulps. Classification of fibres: 1. Seed hairs; cotton, chemical and physical character of fibre, dimensions, analyses. 2. Bast fibres, as linen, jute, hemp, manilla, rhea, ramie, agave, sisal, adansonia, &c.; occurrence in plant, separation of filaments; character, size, distinguishing features of filaments and ultimate fibres, analyses and chemical properties. 3. Fibres and other cells from whole stems and leaves, as straw, esparto, bamboo; measurements and characteristics of fibres, yields, analyses; characteristic cells found with fibres. 4. Wood fibres: growth of wood; cambium layer; spring and autumn wood; sap and heart wood; resins; bark and knots; analyses of woods; specific gravities; ash; fuel values; occurrence and character of all woods used for pulp making.

CHAPTER III.—**Processes for isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock; antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

CHAPTER V.—**Sizing and Loading.** Resin; preparation of size; free alkali; free rosin; alum; analyses of alums; free acid; basic alums; sizing power; resinate of alumina; moss; casein; wax; starch; animal sizing; preparation and use; drying; loading; analyses of clays, agalite, pearl hardening, &c.; use; retention; ash; combined water; effect of alum and starch.

CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

CHAPTER VIII.—**Chemical Analysis.** Description of apparatus and methods for testing the purity and strength of all paper making chemicals, colors, &c.; common impurities and adulterants given; full description of methods of analysis for sulphite and soda liquors, bleach solution, alums, &c.

CHAPTER IX.—**Paper Testing.** Full account of the latest German methods for testing and classifying papers; determination of ash; kind of sizing; amount of sizing; free acid and chlorides; strength; proportion of ground wood; kind and condition of fibres.

CHAPTER X.—**Electro-Chemistry,** with references to bleaching, manufacturing of pulp, manufacturing of chlorine and soda.

APPENDIX.—Metric system; tables of specific gravities; strength of solutions; list of sulphite patents, &c.

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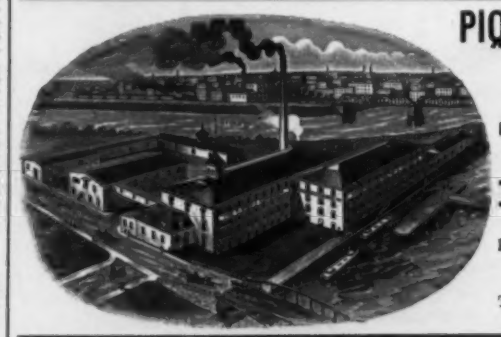

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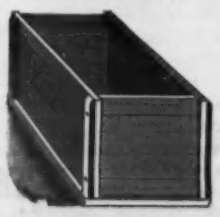

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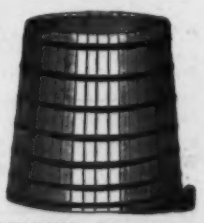

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JENKINS BROS.,

New York. Chicago. Philadelphia. Boston.

rived and are being set up. The new engine for the mill of the Atlas Paper Company in this city, also arrived yesterday, and the work of getting it in running order has been commenced and will be hurried through with all possible speed.

An accident happened last week to the new motive power at the mill of the Badger Paper Company at Kaukauna, and while the direct damage was not large, it is indirectly considerable, as the mill could not be operated for several days until the broken parts could be replaced. In some way the large rope of the drive to the main shaft flew off, badly demolishing several pulleys and hangers and cutting the rope in three places.

Excavation was begun last week for the foundations of the new boiler house for the mill of the Shattuck & Babcock Company at De Pere. The new house will adjoin the present boiler house on the west and will be 47x60 feet in dimensions. The engine room, 27x50 feet, will be located at the angle of the boiler house and the bleach room. An archway will communicate with the main building of the mill. The battery of Root steam boilers has arrived and is ready to be put in place. The engine will be coupled directly to the main shaft without the intervention of any belts or other driving apparatus. It is thought that the present smokestack will be large enough for the new as well as the old boiler plant, but if it proves otherwise forced draft will be used.

N. C. Bonnevie, the sulphite expert, who has been visiting Appleton friends for a week past, said to your correspondent that in one respect the new sulphite mills which are going up in the West are not up to the ideas of the East. This is in the size of the digesters which are being put in. The rule in the West seems to be to use digesters having a capacity of about 2 tons at a charge, while in the East manufacturers are putting in digesters which give as much as 7 tons at a charging. Such a digester would be about 38 feet long and 14 feet in diameter. The economy comes in the reduced amount of help required to get out the same amount of product, the labor of filling and blowing off being much reduced in proportion. He said, continuing, that the Western market for sulphite was much better than the Eastern, as in the East the business is overdone more than here.

Improvement work at the plant of the Manufacturing Investment Company, in this city, was completed last week. The connection has been made between the power house of the mill and the Telulah Canal. The new canal is about 150 feet long and has perpendicular sides walled up with stone. The flume at the mill is the full width of the canal. Two bridges have been built for railway sidetracks and one for teams. The Telulah Canal itself has been thoroughly cleaned and riprapped.

John Gittens, of the Shattuck & Babcock Company, has begun the construction of a handsome residence in De Pere.

FOX RIVER.

ON THE WING IN BERKSHIRE.

[FROM OUR SPECIAL CORRESPONDENT.]

PITTSFIELD, Mass., August 5, 1895.

The great paper mill interests in Berkshire County, although experiencing no feverish business pulsations, are all busy again after the summer slackness for the purpose of making necessary repairs and enabling both proprietors and help to indulge in short vacations. The manufacturing and public improvement boom in Adams and North Adams continues to grow extraordinarily forceful and challenges great attention. The Berkshire Cotton Manufacturing Company at Adams, which built its first great mill in 1889, and its second in 1892, is laying the foundations of its third five story mill, which is to be 425 feet long by 116 feet in width, with a 140x50 foot L. When completed it will be the largest cotton mill in America, will be run by 1,800 horse steam power, will contain 80,000 spindles, 2,100 looms, employ 1,000 persons and cost $1,000,000.

Following the recent organization of the Adams Co-operative Bank, of which Treasurer A. B. Daniels, of the L. L. Brown Paper Company, is one of the vice-presidents and leading promoters, has been the discovery of a white and clouded marble quarry, the stone being formed of pure white small crystals, being both fine and firm and capable of taking on a superior polish. Chemical and electrical tests made in New York show that no iron is to be found in this beautiful marble, and experts pronounce its quality superior to any yet discovered in New England. It outcrops in formidable 80 foot high, inexhaustible ledges at the eastern base of old Greylock Mountain, and only a mile from the main village centre. A company has been organized with a capital stock of $25,000 to work this quarry, and $12,000 worth of machinery is being placed therein. A. B. Daniels is president of this company, and the latter, with W. S. Jenks, of the L. L. Brown Paper Company, are two of its five directors. New York builders have contracted for the entire output of this quarry, and have already placed $17,000 worth of orders for the stone, which muriatic acid refuses to nibble or decompose, and which the strongest electric currents refuse to heat.

James Osborne, of Adams, seventy-five years of age, recently fell from a load of sawdust, broke his right hip and was taken to the North Adams hospital. He was for very many years the efficient superintendent of the L. L. Brown Company's paper mill.

George F. Borden, of the Fairfield Paper Company, at Fairfield, having sold his beautiful country seat and farm overlooking the village of Adams and the Greylock range of mountains from the Hoosac Mountain slopes, to Mr. Noble for a stock farm, has purchased a fine residence on Dartmouth street, Springfield, where he has taken up citizenship. He is within a half hour by railroad from Fairfield.

North Adams continues to be puzzled over a queer crankism of electricity in its vicinity. Although when the great 4½ mile Hoosac tunnel was built no ores, magnetic or otherwise, were encountered, there was general expectation that rich ore pockets would be found, for a yet unexplained reason not an electrician has been discovered who can send a telegraphic message on a wire running from portal to portal of that tunnel, be such wire run inside of an ocean cable through the huge cavern or out of it. Therefore such messages have to be sent on wires strung on poles over the top of the mountain, fully 9 miles, and that is the way in-going and outcoming passenger and freight trains are heralded to the keepers of the two tunnel approaches. In order to maintain this overland mountain tunnel line a swarth of woodland has to be kept clear of trees and bushes directly up the steep mountain side, which reminds one of a modern dude with a well defined central hair parting from forehead to crown. The average hustling North Adams man, although somewhat disturbed by this subterranean mystery, keeps right on with his enterprising knitting.

Work on the new State Normal School building has been begun, and the structure is to be of white marble from the quarries of Brandon, Vt. New manufacturing enterprises in the "tunnel city" are the construction of additions to both the Beaver and Eclipse cotton print mills, 200x75 feet, three stories, brick and iron, by Gallup & Houghton, and the Arnold Print Works, for the manufacture of fine cotton goods. This gives a capacity of about 50,000 spindles, and will furnish employment to 600 hands. The Windsor Print Works Company is also building a 115x70 feet, two story shearing and roller structure.

The country is filling up with New York, Brooklyn, Boston, Philadelphia and Chicago summer residents, who own cottages and frequent its fine summer hotels. The Maplewood at Pittsfield, the Red Lion Inn at Stockbridge, the Berkshire Inn at Great Barrington and the Irving House at Dalton are full of such guests. The latter has become so thoroughly popular that Zenas and W. Murray Crane, although they completed the new hotel last season, will build a large 100 feet addition to the same next fall. The structure is patterned after the John Hancock Colonial Home in the eastern part of the State, and the location is one of the gilt edged in the beautiful Housatonic Valley.

The Greylock Hotel in Williamstown is also a favorite summer resort and it has been reinforced of the filling up of the Greylock Institute in South Williamstown for a new summer resort. From now on until snow flies coaching parties, tally-hos and private carriages will roll through and over the fine country roads from Sheffield to Williamstown, and between the principal summer guest hotels in great numbers. This is a growing fad in Berkshire, and from five years ago the notes of the coaching party bugles have become as plentiful as apple trees on the banks of the Ohio River, planted for the good of future generations by the famous Apple-Seed Johnny.

The Smith Paper Company, of Lee, reports steady business, very much better than a year ago. The company has made quite a number of improvements in its fine plant within a few months, among which has been the placing of new boilers in the Valley Mill.

Clark & Spencer are quite busy at their works at South Lee, and recently shipped a new machine to the Crocker Manufacturing Company, at Holyoke.

The building of a mile of State highway from East Lee Park eastward along Hop Brook toward Tyringham has caused the paper mills on this famous brook a heap of trouble and discomfort. Of course the construction of this road has now shut travel off of it for a full year and driven the same up a fearful old road hill, evidently built at a high altitude by the pioneers so that they could keep an eye on the Stockbridge Indians when they drove to the grist or fulling mills, or to Sunday meetings, or marched away to Concord and Lexington as Minute Men of the Revolution. In consequence of this new highway improvement, which will be as fine as a new barn floor when completed, all of the rags and chemicals have to be tugged up one steep hill and down another to reach these upper Hop Brook paper mills and the completed stock bound for market up and down hill to the station, vice versa. W. H. P.

HOLYOKE.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., August 8, 1895.

This week, like many of its predecessors, has been marked by quietness in the trade. Business cannot be said to be picking up as yet, and it can hardly be expected to as long as the warm weather lasts.

The dullness in trade circles can easily be traced to the season of the year. As long as the volume of business keeps up to its present standard, no one will feel like complaining.

Fine writings have the call just now as regards orders, and the demand is fair. Standard grades of book papers find purchasers in a mild way, and some of the cheaper grades both of writing and book papers do not suffer for a market. Prices are unchanged.

There is some business coming to the stock dealers, but the demand is not yet very pronounced. Large orders are not being placed and the dealers are patiently waiting.

The assessors' books show that there are thirty-three concerns in Holyoke at present manufacturing paper or in some way connected with the trade, paying a total tax to the city of $100,965, a considerable increase over last year's figures. They are thus enumerated: Albion Paper Company, $4,971; Crocker Manufacturing Company, $2,445; George C. Gill Paper Company, $4,123; Nonotuck, $6,714; Parsons No. 1, $10,230; Parsons No. 2, $5,149; Valley, $3,484; Whiting, $10,083; American Pad, $168; Beebe & Holbrook, $3,279; Connecticut River, $2,950; Franklin, $1,289; Hampden Glazed, $1,226; Judd Paper Company, $397; Massasoit, $2,499; National Blank Book Company, $1,826; Norman Paper Company, $4,937; Powers, $336; Purcell Envelope Company, $302; Riverside Paper Company, $7,489; Smith & White Company, $218; Smith, Wilson & Sears Company, $438; Wauregan Paper Company, $2,239; Whitmore Manufacturing Company, $420; Chemical Paper Company, $4,731; George R. Dickinson, $3,609; Excelsior $931; Holyoke Envelope Company, $1,415; Holyoke Paper Company, $5,530; Linden, $5,400; Newton, $1,774; Eureka Ruling and Binding Company, $109; Buchanan, Bolt & Co., $254. The Holyoke Water Power Company pays the largest corporation tax in the city, the sum being $30,128. The Holyoke Machine Company pays $3,478. These figures convey some idea of the amount of money invested in paper producing plants in this city.

During 1894 two new companies entered the field, building three large mills and increasing the production about 40 tons. During that time nearly 500 new hands were given employment in these mills, adding materially to the wage earners in the city. The George R. Dickinson Paper Company and the Crocker Manufacturing Company will increase the value of their plants by means of the improvements now under way, and each will afford employment for more hands.

The Whiting Paper Company has had the matter of increasing the size of its finishing department under consideration for some time, and the work was begun this week. A building 125 feet long, 50 feet wide and four stories high will be erected. This department has been pushed for room for some time, and this extension will enlarge the company's facilities. The new building will probably be ready for occupancy about November 1.

The Albion Paper Company has just made this corporation return: Fixed capital, $60,000; capital paid in, $60,000. Assets—Land and water power, $60,000; buildings, $146,000; machinery, $182,000; cash and debts receivable, $90,827; manufactures and merchandise, $149,733; total, $628,561. Liabilities—Capital stock, $60,000: debts, $224,334; profit and loss, $344,226; total, $628,561.

The Fall Mountain Paper Company, at Bellows Falls, Vt., received its big drive of logs this week. The drive represents 2,000,000 feet of lumber, which will be reduced to pulp.

John C. Manning, of Northampton, accused of arson, has been released on $1,000 bail. Mr. Manning was formerly employed in this city and he has many friends who have firm faith in his integrity. He has always been an honest, hard working young man and his friends do not think that he would commit such a crime.

The *Hampshire County Journal*, which has been published at Northampton during the past year by E. W. Rew, suspended last week. The *Journal* was founded in 1860 by H. M. Burt, who continued as editor and publisher until 1864, when he sold out. Since then it has changed hands seven or eight times.

The finishing rooms of the Hampshire and Carew paper companies have been shut down for several days for repairs.

Springfield's tax rate is $12.20 on $1,000, which beats us just $4.60. The increase in valuation is $2,584,516.

Hon. William Whiting has returned from his Maine outing.

The employees of Buchanan, Bolt & Co., had their annual clambake at Bear Hole last Saturday. H.

BOSTON.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 FEDERAL STREET,
BOSTON, August 8, 1895.

Since last reporting the sentiments of the local trade on business matters a change for the better seems to have developed.

This improved condition of business is quite marked with paper dealers, although houses with extended connections feel the increased demand for paper more strongly.

"For a week past," said the representative of one of the leading paper jobbing firms, "we have been very busy. Orders from the West and the South have been coming in very lively, so that at present we can say that business is good with us. It may be only a temporary spurt, but as such it is welcome and we hope to have it continued."

A traveling representative of another Boston paper firm was talked with last Monday. He had just got in from a week's trip over his New England circuit, and he stated that he had done an extra good week's business.

It would seem therefore that the consumptive demand for paper has started up a little in some quarters, and when the call becomes more general, mills will be hearing from the jobbers more frequently.

Water is getting scarcer throughout New England from week to week, and a good heavy rain storm of a few days' duration is much needed.

For a few hours yesterday it rained in torrents in this city, but the storm did not extend very far north, and it is doubtful if the heavy downpour was of any benefit to the paper manufacturing interest of New England.

The summer meeting of the Boston Paper Trade Association has been arranged to take place at the Eastern Yacht Club House, Marblehead Neck, on Friday of the coming week, August 16.

Official notices of this summer reunion are now being mailed by Secretary Forsyth to all members of the association. The excursionists will reach the place of meeting by special steamer sailing from India Wharf at 12 o'clock, and dinner will be served at the Eastern Yacht Club House at 2 P. M. Members not able to go on the steamer at noon can take a train at 12:40 or at 1:25 P.M. on the Boston and Maine road for Devereux, where conveyances will be in waiting to take them over to the club house. The party will return by the same steamer to Boston, arriving about 7 P. M.

This will be the first summer gathering of the trade and it is hoped that an extra large attendance will be at the meeting. Music will be provided, a good dinner is promised, a delightful sail is expected and the usual good fellowship will prevail. Every member of the trade delighting in these social re-unions will be there, and those over worked members burdened by cares of combinations ought to take a day off and join with the merry-making of this occasion.

Col. E. H. Haskell will sail to-day from Genoa, Italy, on the steamer *Kaiser Wilhelm*, for New York, accompanied by his wife and two daughters.

William T. Barker has been obliged to lay up this week owning to illness, but he will be out again in a day or two, as he is not seriously sick.

Geo. W. Wheelwright is spending a few days at Penobscot Bay.

M. B. Mason is summering at Manchester-by-the-Sea.

Charles A. Young, with Carter, Rice & Co., his brother George, wife and family are at Chatham, Mass., for two weeks. "Charlie" will be back at his desk by August 19.

Stanton Day, president of the Moosehead Pulp and Paper Company, was in town this week. Ground wood pulp makers are in very good cheer just now, that is to say, some of them are—those with plenty of water.

Other trade visitors reported were C. H. Milliken, of Mechanic Falls, Me.; F. A. Lyman, of Augusta, Me.; N. M. Jones, of Howland, Me.; E. C. Robertson, of Hinsdale, Mass.; Charles E. Calendar, of Glendale, Mass.; John D. Carson, of Dalton, Mass.; Fred Temple, of Pepperel, Mass.; Charles S. Mayo, of Lawrence, Mass.; James Logan and Mr. Williams, of Worcester, Mass.; E. E. Bill, of Springfield, Mass.; C. H. Southworth, of South Hadley Falls, Mass.; Oscar Greenleaf, Sam Rust, C. H. Davenport, Jr., Geo. Nightingale and Franklin Pierce, of Holyoke, Mass.; F. Carruthers, of Brattleboro, Vt.; Mr. Grubb, of Chicago; I. R. Elston and C. W. Cook, of New York.

Another old trade visitor was T. E. Barnes, of Plantsville, Conn., he of S. O. S. bag fame, for twenty years connected with the Pultz & Walkley Company and said to be the best paper bag salesman in the country.

The will of the late A. H. Rice was filed on August 6. By its terms he leaves $10,000 to his widow, Angerona E. Rice, and $20,000 in trust for the education and maintenance of his son, A. S. Rice, until he reaches the age of twenty-five, when the principal and interest shall be paid over to him. The rest of his estate he conveys, in trust, to his children, Augusta, Lucy and John, in such proportions as will best meet their respective needs. J. H. Rice and A. A. Rand are named as trustees.

The resolutions adopted by the Boston Paper Trade Association on the death of ex-Governor Rice have been handsomely engrossed, under the direction of Secretary Forsyth. The resolutions presented to the Rice-Kendall Company were engrossed upon a heavy sheet of parchment 18 by 22 inches in size, designed for framing. The copy for Mrs. Rice was in the form of a booklet, the leaves being set in white board covers and tied with white silk ribbon.

Early yesterday morning, as the writer was on his way to the steamer from his night's resting place at Hull, he saw lined up on the piazza of the Hotel Pemberton several gentlemen of the city trade. They were in pretty good cheer and full of big expectations concerning the results of the day, as they were preparing to take a big sailboat for a day's fishing excursion. In the party were T. H. Keenan, Pulsifer, Jordan & Co.'s expert accountant; J. W. Vivian, manager of the firm's envelope department, and H. L. Paine, the firm's New England traveling salesman. Edward E. Bill, of the Springfield Envelope Company, Springfield, Mass., was also in the party, and he must have acted as steward, as he had a package of sandwiches and a big jug of Penobscot water in charge. Then there were others, all guests of Commodore Keenan. The results of the day were not satisfactory. The party was caught in a fog bank, and for hours the rain poured down and the wind blew a gale. Their sandwiches were soaked with water, and the 5 gallon jug went overboard. The party got back to the Pemberton after the storm, thoroughly drenched, and when dried out took the boat for Boston. Commodore Keenan was sent to his cottage at Alerton, and being a family man was allowed to keep the catch—five sculpin, two perch and a jellyfish.

Books valued at $1,283, paper valued at $1,070, were exported from Boston during the week ended August 2.

DELESDERNIER.

Atlanta Exposition.

The following preliminary notice of the system of awards has been sent out by the Exposition officials:

The services of a large number of expert judges, elected from different parts of the country, will be secured. They will be distributed in groups corresponding to the departments that have been officially recognized in the classification adopted by the authorities of the exhibition. In every group there will be a chairman and a secretary. The chairmen, collectively, with certain other persons to be hereafter chosen, will constitute the highest board of award.

The awards will be made in the name of the jury and not in the name of individual judges.

Four degrees of excellence will be recognized:

1. Honorable mention.
2. Bronze medals.
3. Silver medals.
4. Gold medals.

In all grades diplomas will be given. In the three highest grades the diplomas will state that the recipient is entitled to a medal. The bronze medals will be given by the Exposition, but because of the costliness of the silver and gold medals the recepients (according to usage elsewhere) will be expected to pay for them a sum not exceeding the actual cost thereof.

The juries will be assembled in Atlanta on October 15, and exhibits not then in place will have no claim for consideration.

The juries are requested to complete their awards on November 1, so that they may be at once announced.

New Inventions—LXXXVI.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY GEO. DAMON RICE.

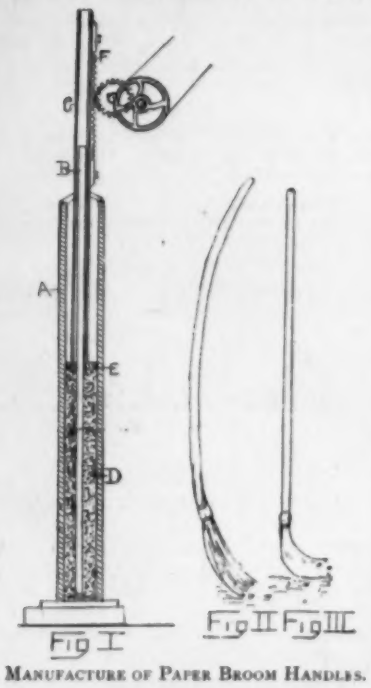
There is not a very large amount of wood in the handle of the ordinary broom, but so great is the number of broomhandles annually consumed, that the consumption of wood for this purpose runs up to large proportions every year. Many millions of brooms are required to supply the markets of the world, and although the supply of wood is by no means nearly exhausted for ordinary broom handle purposes, the increasing demand for these household implements necessitates large drafts on the supplies of the less costly hard woods, such as beech, ash, maple and birch. These woods are preferable to softer sorts for the reason that they make stronger handles, less likely to splinter, and a bolt of smaller dimensions can be used. Elm and similar wood is unavailable because a broomhandle must be perfectly straight, and warping spoils it. Woods for broomhandles must be clear from knots and the grain should be regular. There is said to be an average of 35 per cent. lost in waste of wood in making the best grades of broomhandles.

There are other disadvantages to the employment of wood stock, among which may be rated the time lost in seasoning the handles after they are turned, for unless well dried the broom part will soon loosen. Since the advent of paper pulp in the manufacture of handles for tools, parties interested in the broom manufacture at Amsterdam, New York, where several factories produce about 1,000 brooms each, daily, have endeavored to introduce broom handles made from paper stock. The stock includes straw, manilla, rags, &c., is disintegrated, subjected to churning in water, bleached, passed through a suitable washing apparatus and treated to ingredients made as follows: 1, a solution of lac gum in borax, made by mixing 3 ounces of borax in a quart of water, adding 5 ounces nigrosine if a shaded or dark colored handle is required. If white handle, the nigrosine is omitted.

2, 2 quarts of albumen are dissolved in 10 of water at 70° Fah. and rosin in small proportions is added, the whole being boiled and mixed.

3. A solution of caseine in ammonia is also used.

The three compounds are introduced into the pulp simultaneously. Another thorough blending is done mechanically, the pulp is run off into receptacles, where it is permitted to stand several days, after which it is run into molds. The molds are for the purpose



MANUFACTURE OF PAPER BROOM HANDLES.

of shaping the handles, the principle of which is shown in Fig. 1, in which an interior sectional view is given, A representing the shell of the mold, which is steel; D, the pulp. Two objects are sought during this stage, viz., the shaping of the stock into a handle, and its compression into a solid substance. The shaping is acquired by the form of the shell, and the compressing by the rammer E, which is forced downward and into the shell against the pulp with great power by the use of the gearing at F, where a belt revolves the pulley and gear, and the latter engages with the cogs in the gearing fixed to the rod of the rammer E. The pressure movement is slow and steady, thus developing great power.

The handles are not solid. It is found that hollow handles are not only lighter but stronger than solid, therefore these new style pulp patterns are made on the hollow tube principle by the insertion of a steel rod, B, inside of each mold at each production of a handle, and this rod is inside of the rod of the rammer and extends to the bottom of the mold, thus perfecting a hollow broom handle. The mold and gearing stand in framework, and great stability is had. Later, there will probably be a series of molds in a single machine, all manipulated from one set of gearing and attended by one operative. This is a description of a working model only.

There are several points of importance which should be mentioned in connection with paper handles. Lightness is, of course, a feature both in the use of the broom and in saving on freight bills; but a chief feature is the peculiar flexibility of the handle as represented in Fig. II, in which the paper broom handle is shown in action, the nature of the bend of the handle being such that the sweeping motion is claimed to be rendered easier and more effective, as the straw part of the broom receives an elastic movement which does not strain the straw, but glides it smoothly over the surface. The paper handles bend about as much as indicated in this Fig. II. A wooden handle usually remains quite stiff, and the broom part is often doubled up as may be seen in Fig. III, which is, of course, detrimental to good work and disastrous to the straw, as well as tiring to the person handling the broom. There are no such things as knots, crooked grains, splits, splinters and like defects in paper pulp handles.

These handles can be made as cheap as the wooden. A dozen methods of finishing the handles artistically are in progress, including fancy molded designs, colored figured effects, finely polished designs effected mechanically, so that, taking it all in all, the idea of deriving broom handles from a source which appears unlimited is upon a practical basis.

Tariff on Paper Makers' Felts.

On Monday the decision of the Board of General Appraisers as to the duty to be levied on paper makers' felts, under the present tariff law, was handed down. It was written by General Appraiser Sharretts, and was based on protests made by F. Bredt & Co. and Watson & Coon, on importations ex Brittanic, Teutonic and Cevic in January of this year. The decision is as follows:

The goods covered by these protests were entered for consumption after August 28, 1894, and are popularly known as endless felts. They are designed for paper makers' use and are a woven fabric valued at less than $1.50 per pound, and composed of wool. The surface of these goods resembles felt, but being woven and not felted, the collector classified them for duty as manufactures of wool and assessed duty thereon at 50 per cent. ad valorem, under paragraph 283. The appellants claim the merchandise to be dutiable at 45 per cent. ad valorem, under the provisions of paragraph 284 for felts composed of wool. We find further that the merchandise is not felt within the popular meaning of that term, it being a woven fabric and not wrought into a compact substance by rolling and pressure, but that it is commercially known as wove. Paragraph 396, Act of October 1, 1890, contains a provision for felts not woven; which would seem to indicate that certain woven substances were known to Congress as felt. Indeed we may conclude in the light of subsequent legislation, that felts for paper makers' use and felts for printing machines were among the substances excluded by terms in paragraph 396, Act of October 1, 1890. Paragraph 283 of the present act enumerates among other substances felts for printing machines, and such felts are fabricated in precisely the same way as the merchandise in question. In accordance with these views and on the facts, we sustain the protest and reverse the collector's decision in each case.

A simple test for detecting acids in lubricating oils is made by putting the samples to be tested in a clear, air-tight glass bottle with a copper wire extending through the cork. If after exposure to the sun's rays for two weeks verdigris or green rust appear on the copper, there is acid in the oil.

Sheet packing should be kept flat on a shelf or in a large drawer, for if it is rolled up it may be troublesome to get it between two flanges when you want to use it.

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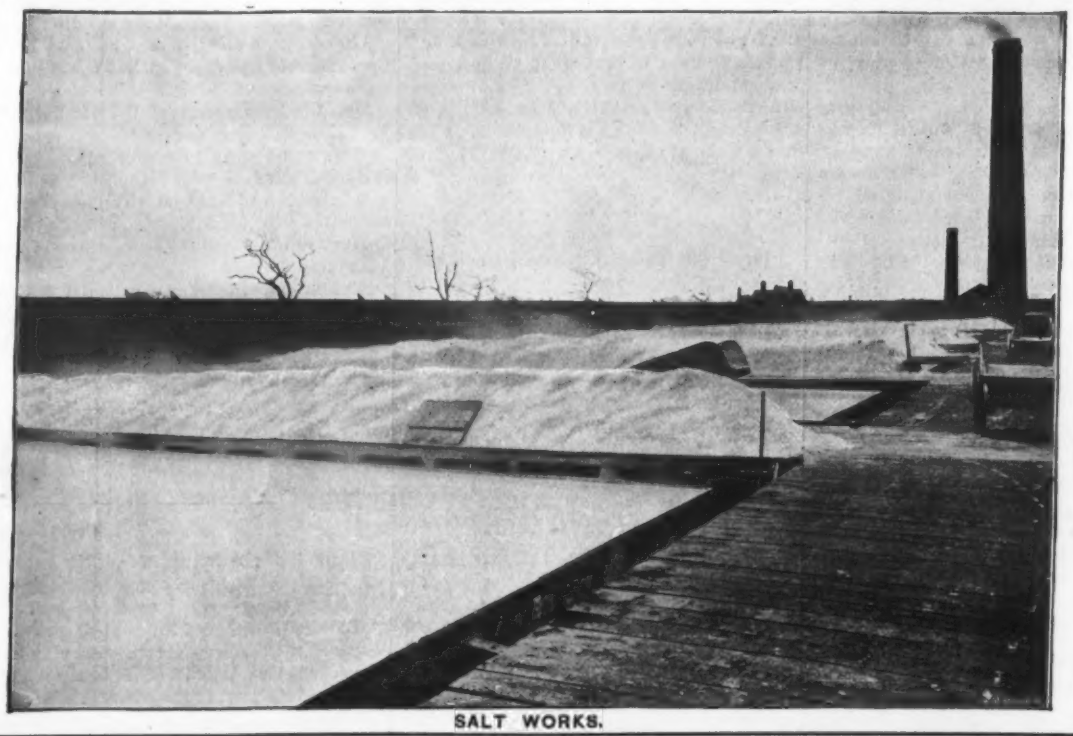

SALT WORKS.

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Paper Makers' Soda Ash,
Salt Cake,
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High Test Bleaching Powder,
Pure Alkali,
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Imports and Exports.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED AUGUST 2, 1895.

An. Colors..	829	$60,433	Paper.....	906	$28,661
Alum.....	41	144	Steel Pens..	8	6,832
Alum's Cake	—	—	Stationery.	17	599
Bl. Powders	598	8,235	SlatePencils	201	1,552
Soda Ash...	3,442	10,375	Clay.....	—	596
Soda, Caus.	620	6,969	J'te B'ts,&c.	8,893	15,555
Soda, Sal....	718	1,201	P.Hangings	21	1,389
Soda, Hypo.	500	690	Pap'r Stock	3,128	35,184
Ultramarine	178	5,439	TerraAlba.	—	—
Books.....	306	37,745	Waste.....	—	—
Newspapers	138	6,047	Wood Pulp	2,538	15,277
Engravings.	29	4,638			
Ink.....	275	1,221			
Lead Pencils	12	2,043	Totals...	23,932	250,756

Imports General Merchandise for the week ended August 2, 1895..... $6,096,108

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO AUGUST 7, 1895.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria...	685	....	....	....	....
Antwerp.....	2,976	5	1,029	....	11,899
Bordeaux.....	1,029	....	....	....	850
Bremen.....	2,615	725	49	....	2,839
Bristol.....	....	...	....	....	2,293
Buenos Ayres.	520	....	....	....	....
Calcutta.....	....	...	....	....	5,838
Cen. America.	180	....	....	....	....
Christiania....	....	....	85	....	....
Copenhagen..	...	....	125	....	1,581
Dundee.....	....	....	1	....	706
Fiume.....	....	....	34	....	....
Geestemunde.	412	....	....	....	537
Genoa.....	898	....	....	....	3,568
Ghent.....	90	40	....	....	395
Glasgow.....	140	53	....	....	78
Hamburg.....	4,104	279	1,477	....	2,110
Havre.....	....	....	....	....	1,069
Hiogo.....	6,544	....	....	....	....
Hull.....	4,324	40	2,081	....	7,356
Kobe.....	11,578	....	....	....	....
Leghorn.....	1,451	....	....	....	185
Liverpool.....	770	195	....	....	12,630
London.....	3,335	1,466	....	....	7,331
Marseilles....	135	....	30	....	1,597
Newcastle....	....	221	....	....	2,454
Rosario.....	....	....	....	....	98
Rotterdam....	2,085	....	67	....	2,564
Stettin.....	907	....	136	....	1,090
Trieste.....	123	....	45	....	....

NEW YORK IMPORTS.

FROM JULY 31 TO AUGUST 7, 1895.

Paper Stock.

R. Helwig, Waesland, Antwerp, 60 tons chemical fibre.
Perry, Ryers & Co., Croma, Dundee, 95 bs. manillas.
Train, Smith & Co., Palatia, Hamburg, 159 bs. rags, 188 bs. bagging.
Lewy Brothers, by same, 263 bs. rags, 8 bs. bagging.
S. J. Rose, by same, 44 bs. bagging.
Train, Smith & Co., Ohio, Hull, 149 bs. bagging.
James Pirnie, by same, 236 bs. manillas.
Castle & Gottheil, by same, 86 bs. rags.
S. Goldman, by same, 43 tons chemical fibre.
E. Hatton & Co., by same, 27 tons chemical fibre.
Horace Dutton & Co., Runic, Liverpool, 136 bs. manillas.
Train, Smith & Co., Cevic, Liverpool, 308 bs. manillas.
J. W. Mason & Co., by same, 400 bs. manillas.
W. O. Davey & Son, Manitoba, London, 133 bs. bagging.
R. F. Downing & Co., America, London, 31 bs. rags.
E. P. True, Greece, London, 60 bs. rags.
Train, Smith & Co., Zaandam, Rotterdam, 97 bs. bagging.
Train, Smith & Co., Amsterdam, Rotterdam, 285 bs. bagging.
Darmstadt & Scott, by same, 20 bs. rags.

Paper.

E. Kimpton, Teutonic, Liverpool, 4 cs.
Hensel, Bruckmann & L., Palatia, Hamburg, 21 cs.
L. DeJonge & Co., by same, 180 cs. and 70 bs.
John Munroe & Co., by same, 44 cs.
Knauth, Nachod & Kuhne, by same, 17 cs.
Henry Lindenmeyr & Sons, 34 bs.
R. Sulzberger, by same, 6 cs.
R. F. Downing & Co., by same, 20 cs.
Paul C. Kuhlke, Zaandam, Rotterdam, 5 cs.
Miller & Flinn, by same, 1 cs.
W. Heuermann, Augusta Victoria, Hamburg, 23 cs.
S. Zimmer & Fildtem, by same, 3 cs.
R. F. Downing & Co., by same, 3 cs.
W. H. S. Lloyd, by same, 2 cs. hangings.
Henderson Brothers, Ethiopia, Glasgow, 20 cs.
John Hunter, by same, 14 cs.
S. Gluckmann & Son, La Touraine, Havre, 4 cs.
American Tobacco Company, by same, 25 cs.
L. De Jonge & Co., Mississippi, London, 7 cs.
G. W. Sheldon & Co., by same, 1 cs.

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BOSTON IMPORTS.

FROM AUGUST 1 TO AUGUST 7, 1895, INCLUSIVE.

Paper, &c.

Wm. Guild & Co., Catalonia, Liverpool, 6 bs. periodicals.
Houghton, Mifflin & Co., by same, 3 cs. printed sheets.
Copeland & Day, Cambroman, Liverpool, 1 cs. printed paper.
Dennison Manufacturing Company, by same, 5 bs. tissue paper.
J. Farley & Sons, Bostonian, Liverpool, 1 cs. stationery.
Gregory & Brown, by same, 1 cs. paper hangings.

Paper Stock.

Train, Smith & Co., Carlisle City, London, 52 bs. waste paper.
C. P. Sumner & Co., by same, 64 bs. waste paper.
Train, Smith & Co., Ohio, Hull, 180 bs. rags, 94 bs. manillas.
R. H. Overton & Son, by same, 295 bs. manillas.
Horace Dutton & Co., by same, 57 bs. rags, 382 bs. flax waste.
Train, Smith & Co., Cambroman, Liverpool, 244 bs. manillas, 48 bs. waste paper.
C. A. Cheney, by same, 113 bs. rags.
Horace Dutton & Co., by same, 195 coils manillas.
R. H. Overton & Son, by same, 157 bs. manillas.
Train, Smith & Co., California, Hamburg, 42 bs. rags, 79 bs. manillas.
F. Salomon & Co., by same, 471 bs. rags.
C. A. Cheney, Bostonian, Liverpool, 69 bs. rags.

Wood Fibre.

Fred. Bertuch & Co., Ohio, Hull, 328 bs.
Morey & Co., by same, 406 bs.
Page, Newell & Co., by same, 96 bs.
Brown Brothers & Co., by same, 82 bs.

Sizing.

Train, Smith & Co., Cambroman, Liverpool, 82 bags.
C. A. Cheney, by same, 86 bags.
Warren & Co., by same, 55 bags.
Baeder, Adamson & Co., by same, 40 bags.
Thomas Groom & Co., Catalonia, Liverpool, 146 bags.

Bleaching Powder.

J. L. & D. S. Riker, Cambroman, Liverpool, 509 cks.
Bowman, Thompson & Co, Bostonian, Liverpool, 101 cks.

Caustic Soda.

J. L. & D. S. Riker, Cambroman, Liverpool, 50 bbls. and 25 drums.
Edward Hill's Sons & Co., Bostonian, Liverpool, 200 drums.

Soda Ash.

Wing & Evans, Bostonian, Liverpool, 141 cks. and 800 bags.
Bowman, Thompson & Co., by same, 16 cks. and 40 bags.
Morey & Co., by same, 15 cks. and 200 bags.
Warren & Co., Cambroman, Liverpool, 35 cks. and 400 bags.

Alkali.

Jerome Marble & Co., Bostonian, Liverpool, 200 bags.

Soda Crystals.

Warren & Co., Cambroman, Liverpool, 420 bags.

Crude Sulphur.

Linder & Meyer, Bostonian, Liverpool, 3,237 bags.

Pulp Stones.

Lombard & Co., Ohio, Hull, 11 stones.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED AUGUST 3, 1895.

Paper

Wolf & Co., Westhall, Hamburg, 38 cs.
A. G. Elliott & Co., by same, 35 cs.

Paper Stock.

Order, Fede, Genoa, 587 bs. cotton waste, 403 bs. jute waste, 225 bs. bagging.
Same, Corean, Liverpool, 204 bs. bagging.
R. Helwig, Switzerland, Antwerp, 345 bs. wood fibre.
Jessup & Moore Paper Company, Maine, London, 140 bs. bagging.

Soda Ash.

Brown Brothers & Co., Ohio, Liverpool, 100 cks.

Caustic Soda.

James Lee & Co., Corean, Liverpool, 75 drums.

Soda Crystals.

Brown Brothers & Co., Corean, Liverpool, 166 bbls.
J. I. Keefe, Ohio, Liverpool, 280 cks.

Bleaching Powder.

J. L. & D. S. Riker, Corean, Liverpool, 51 cks. and 31 tcs.

Antichlor.

Order, Switzerland, Antwerp, 216 bbls.

Sizing.

Order, Fede, Genoa, 42 bs. old pickers.

EXPORTS of Paper, &c., from New York for the Week Ended August 6, 1895.

BOOKS, to Argentine Republic, 2 cs.; British Guiana, 2 cs.; China, 1 cs.; Brazil, 7 cs.; British Australasia, 93 cs.; Glasgow, 10 cs.; British East Indies, 27 cs.; British Honduras, 3 cs.; Bremen, 8 cs.; Constantinople, 2 cs.; Havre, 6 cs.; Hamburg, 1 cs.; Japan, 1 cs.; London, 26 cs.; Liverpool, 11 cs.; Newfoundland, 5 cs.; New Zealand, 1 cs.; Southampton, 1 cs.; Venezuela, 3 pkgs.

PAPER, to Venezuela, 8 pkgs.; Gibraltar, 4 cs.; Hong Kong, 10 cs.; Hamburg, 7 cs.; Argentine Republic, 3 pkgs.; British Guiana, 45 pkgs.; Amsterdam, 6 cs.; Brazil, 489 pkgs.; Bristol, 9 cs.; Bremerhaven, 27 cs.; British West Indies, 1,515 pkgs.; British Australasia, 979 pkgs.; British Honduras, 47 pkgs.; Bremen, 90 pkgs.; Newfoundland, 22 pkgs.; Central America, 3 pkgs.; Dutch West Indies, 16 pkgs.; Liverpool, 57 cs.; Mexico, 90 pkgs.; Nova Scotia, 160 pkgs.; New Zealand, 185 pkgs.; Porto Rico, 756 pkgs.; Colombia, 10 pkgs.; Cuba, 10 pkgs.

STATIONERY, to British Guiana, 7 cs.; Brazil, 8 pkgs.; Bremen, 2 cs.; British Australasia, 5 cs.; British West Indies, 4 pkgs.; Central America, 9 cs.; Gibraltar, 1 cs.; Hayti, 2 cs.; London, 139 cs.; Liverpool, 1 cs.; Mexico, 9 cs.; Newfoundland, 1 cs.; Nova Scotia, 5 cs.; New Zealand, 18 cs.; Porto Rico, 54 cs.; Colombia, 29 cs.; Rotterdam, 2 cs.; San Domingo, 1 cs.; Uruguay, 2 pkgs.; Venezuela, 7 cs.

SANDPAPER, to Argentine Republic, 13 pkgs.; Brazil, 2 bs.; British Australasia, 18 pkgs.; Cuba, 1 cs.; Denton, 15 bdls.; Havre, 2 pkgs.; Hamburg, 11 bdls.; London, 18 bs.; Porto Rico, 3 cs.; Uruguay, 2 bs.

TWINE, to Liverpool, 1,497 bags; Colombia, 6 bs.; British Guiana, 1 bale; Brazil, 98 pkgs.; British Australasia, 1 bale; British West Indies, 3 pkgs.; British Honduras, 4 bs.; Canary Islands, 4 bbls.; Glasgow, 448 bags; Hong Kong, 1 bale; London, 1,928 bags; Uruguay, 100 bs.; Venezuela, 4 bs.

WALL PAPER, to Bremen, 1 cs.; Central America, 20 bs.; Porto Rico, 1 cs.

TAGS, cases, to British Australasia, 18.
CARDBOARD, packages, to Venezuela, 5.
PAPER BOXES, boxes, to Uruguay, 2.
STRAWBOARD, crates, to Cuba, 12.
BOOK COVERS, cases, to Cuba, 1.
NEWSPAPERS, bundles, to Porto Rico, 50.

AGGREGATES AND VALUES.

Paper, reams.....	—	—
Paper, pkgs.....	4,461	$22,222
Paper, cases.....	141	3,774
Books, cases.....	164	15,772
Stationery, cases.....	306	13,844
Rosin, bbls.....	5,330	15,893
Totals.....	10,402	$71,505

Exports General Merchandise for the week ended August 6, 1895..... $6,569,968

Process of Making Ferric Sulphate.

This invention relates to the manufacture of ferric-sulphate solution.

If a mixture of sulphurous anhydrid (SO_2) and air is passed into water containing ferrric hydrate in suspension a chemical reaction takes place, whereby the SO_2 becomes oxidized and combines with the ferric hydrate to form ferric sulphate, the equations representing such reaction being as follows:

1. $Fe_2O_3+3SO_2+3O=Fe_2(SO_4)_3$.
2. $2Fe_2O_3+5SO_2+4O=Fe_4(SO_4)_5+2FeSO_4$.
3. $2FeSO_4+SO_2+2O=Fe_2(SO_4)_3$.

The first of these equations is, it will be observed, the equivalent of the other two, and in practice part of the ferric sulphate appears to be formed direct, as in equation No. 1, while part appears to be the result of an intermediate production and subsequent oxidation of ferrous sulphate, as in equations Nos. 2 and 3.

This reaction is taken advantage of and carried into effect as follows: In any suitable vessel or apparatus—such as, for example, an open vat—place water having ferric hydrate in suspension. The ferric hydrate may be obtained and mixed with the water in any convenient manner—such as, for example, by stirring up or agitating the precipitated ferric hydrate produced in leaching vats employed for the treatment of zinc-lead sulphides. The water need not be pure, but may have metallic salts in solution, such as, for example, is the case with the liquor in the leaching vats. Into the water having ferric hydrate in suspension introduce sulphurous anhydrid and air, either separately or together.

This gaseous mixture may be obtained in any convenient manner, but when operations on a large scale are desired the preferable sources are, first, the roasting of sulphureted ores, and, secondly, the calcination of metallic sulphates. If such roasting or calcination take place in an ordinary reverberatory or other suitable furnace, the issuing gases will be composed of sulphurous anhydrid and air, and may, by means of an ordinary air pump, fan, condensation tower, tromp or other suitable apparatus be intercepted, and led or forced into the water having ferric hydrate in suspension. The above mentioned chemical reaction then takes place, and a solution of ferric sulphate is produced. Generally speaking, the solution will contain more or less ferrous sulphate; but as for many purposes its presence is an advantage rather than a detriment, it can remain. In special cases the ferrous component may be peroxidized. This solution is then available for use in the arts.

In cases where a condensation tower or equivalent apparatus is employed for intercepting the furnace gases, the issuing aqueous solution of sulphurous anhydrid may be used as or added to the water in which the ferric hydrate is suspended, and the required air may be separately blown into the fluid.

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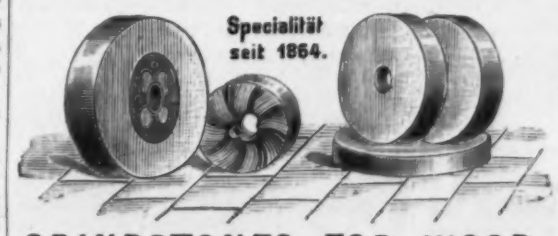

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NEW YORK: SATURDAY, AUGUST 10, 1895.

AN electrolytic apparatus for use in bleaching paper stock is illustrated and described on the first page of this issue of THE PAPER TRADE JOURNAL. It is on the same lines as that to which attention was recently called, and it consists in the combination with an electrolytic cell of cooling pipes or passages therein, a preliminary cooler, a percolator and a series of pipes in connection with a pump to be used in circulating the electrolyte through the apparatus.

WE have from time to time sought to impress upon the paper makers of the country the prime importance of building up a good export trade. Few industries are advancing with such rapid strides as that of paper making. American genius has equipped our mills with machines of marvelous power and efficiency, and improvements in this direction are yet in progress. We have, to be sure, a splendid home market, growing and expanding right along, and there is cause for genuine satisfaction in the fact that Americans are the most liberal consumers of paper in the world, and that, too, of good stock, it being notorious that there is a smaller demand for the "cheap and nasty" in this country than in any other country on the globe. Yet, with all of our wonderful powers of consumption it will become more and more difficult for the home market to absorb the entire paper product of the country. A market for the surplus must be found as a condition necessary for a steady business. There are a great many non-paper making countries which are comparatively new, and where the manufacturing spirit is only just beginning to develop. These afford a proper outlet for our surplus, their powers of absorption expanding with our own increasing productiveness, so that there need be no fear of a diminishing demand.

IT seems to us that it will be much more forehanded, so to speak, to expend our energies in developing fresh markets than to devote them all to the far more difficult task of getting a foothold in older countries. It is something to be proud of certainly, to be supplying news to several London daily papers, because it so completely refutes the idea that high wages mean dear products. Great Britain's paper making industry is well developed, however, and any footing that we may obtain in her home market has a double satisfaction not far to seek nor difficult to understand, but getting it is slow, and in the end may not produce the results sought—a steady, growing and lasting market for our surplus. We are much more likely to realize such conditions in newer markets located in growing countries, such as those which lie south of us. The significance of an English demand for American paper lies in the fact that our high priced, intelligent labor produces cheaply, and can, quality for quality, hold its own in any market where we may choose to act persistently and energetically.

IN the industrial and trading world prospects continue to brighten and the promises of a good fall trade are now beginning to materialize. Buyers are making their appearance in increasing numbers, and while there appears to be no falling off in the demand for staple and the more necessary classes of goods, other departments are now coming in for a share of the increase. This may be construed to mean that holiday buying and its attendant seasonable trade has come to the front early, which indicates much confidence in the future. Railroad men are taking a cheerful view of the fall and winter traffic prospects, based largely, of course, on the promise of large crops, but ably seconded by the free movement of merchandise and materials of manufacture. In the financial world there has been something of a flurry over renewed gold shipments, but the digression seems to be natural and incident to the season, and it may soon be met and overcome by cotton bills and other forms of exchange which attend the movement of crops. Bank clearings for July aggregate $4,538,000,000, about $156,000,000 more than in June, 30 per cent. more than for July, 1894, 10 per cent. more than for July, 1893, and less than 2 per cent. below July, 1892. With the exception of the last named year, it was the largest total for any July in twelve years, and represents an unusual and widespread activity in business for the season, involving almost exclusively internal trade and commerce. The wave of increasing wages is rolling along, gathering in new industries as it proceeds, and in every direction there is cheer for the present and encouragement for the future.

IN abandoning the rebate system the National Wall Paper Trust confesses judgment, so to speak. No single power serves the peculiar ends at which the trust aims so well as the rebate. Its purpose is to bind the various branches of a trade by bonds of selfish interest, which are always the most powerful in man, and make them subservient to the purposes of the manufacturer. As a system of "reward and punishment" it is a nearly perfect instrument, possessing, as it does, the power to ruin the recalcitrant and build up and protect the subservient by preventing new capital from entering the field. The grip of the wall paper trust was singularly complete in that it controlled from the start a large part of the wall paper product, a fact which placed almost the whole body of the jobbing and retail trade in its power, or it was believed that it did. The abandonment of the rebate system seems to indicate that, however much the surface of things may have indicated the perfect working of the plans of the trust, there was an undertow of revolt which could not be controlled. The abolition of the rebate will be a further disruption, so that the power of the trust may soon be counted among the evil things in trade which have been defeated by its own unscrupulous and overreaching methods, and is no longer to be feared. This action of the wall paper combination cannot fail to have an influence on other trusts which have followed the same methods. Extortion will become more difficult where free competition exists, and the distribution of products will under it more closely approximate the needs of the people. May all trust rebates fare similarly!

Watermarks.

BY DANDY.

A publisher this week sent out an inquiry to various paper houses for "something." "23x25, 50-60, 500 to equal 1 inch." Now, if paper dealers were only mind readers they might find out what the inquirer wants, but as they are not, they don't know what grade of paper to send him.

The Government secret service men this week "scooped" in a lot of counterfeiters, together with their outfit, included in which is a lot of fibre paper, such as bank notes are printed on. One of the leading questions in the case is, Where did the paper come from?

Talking about this paper, a leading New York paper says: "The great difficulty of all counterfeiters heretofore has been to find a paper that has no watermark. The present combination has succeeded. All paper manufacturers have a watermark, and the detection of counterfeit bonds and notes has been made by this means."

Now, that is a "solid chunk of wisdom," such as no paper manufacturer ever yet heard of. The newspaper man says that he makes these allegations on the authority of Chief of the Secret Service Hazen, but I doubt it. I don't think that Chief Hazen was born yesterday, and if he wasn't he knows better than that.

The suggestion is put forth that the paper is hand made, and was produced by one of the counterfeiters. That is a very fair presumption. The lot of paper which was taken with the Hoyt gang in Connecticut some time ago was not hand made, however. It was made on a cylinder machine, but where is a query which has not been successfully answered.

Talking about daily papers reminds me that during this week some of them have taken the information as to the news paper combination which has been published in THE JOURNAL from time to time since last fall, padded it out with glittering generalities, trimmed it with errors, added a list of the news mills, put on it "scare" heads, and called it a new and up-to-date story. That is enterprise with a vengeance.

The news combination is certainly making headway and will probably be in shape for business about the beginning of next year. Some of the people who were invited to come in did not "qualify," and "there are others" who were not asked to become a part of the scheme.

If the combination goes through it will not cost so much to keep a a pressman in good humor, and the list of "perks." will be scaled down a great deal. It ought to be.

The soda fibre manufacturers are at it yet, hammer and tongs, and it is hard to say just what figures will be made. The brethren are to have a nice, sociable meeting this month, and at that time I presume the patients will be looked over, and an effort will be made to ascertain the extent of their injuries. It is barely possible that some of the contestants may have a battered appearance, but every one of them will probably say: "That's nothing. You ought to see the other fellow."

Trade Talks.

Joseph M. Bleyer, of Bleyer & Brothers, 61 Fourth avenue, New York—Business? There is no business to find, at least this week, and that is the exception rather than the rule with us, for we have had the best of business from July, 1894, to July, 1895. In fact, that was the best year we have had since we have been in business, now a matter of over ten years. Therefore we have no complaints to make. Our business will easily come up this year to $175,000, and I think that it has improved fully 30 per cent., but this past week it suddenly took a slump, which I suppose is because so many people such as could afford it have been away to the seashore or mountains for a vacation. At all other times, however, our trade has been good, and even when all other people were complaining during the hard times of 1893 we were doing well, and our trade has increased each year. This is a bad season of the year to judge of what business is or is not going to be. In the great majority of cases we do our business directly with the heads of houses, but now that they are away the business is conducted by the heads of departments and by clerks, and is therefore much curtailed until the proprietors return from their vacations. Nevertheless, business, I think, is improving, and there is every outlook that we will have a good season. It is a question of how much money we can make and of what prices we can get. This part of the trade has been ruined by people cutting prices so much, and the bottom has just been knocked out of it in consequence. Ten years ago or such a matter when we first became connected with it, the paper trade was one of the nicest kinds of business in which to be engaged, but things have changed very materially since that time. Prices then were high, business was always good, there was no cutting of prices such as we experience now; competition was not so keen, and though dealers sold less goods they made more money. There was less of a scramble for trade by the mill men. Then it was very rare for a mill owner to come to New York. The trade was all conducted by mail, and orders were given and solicited almost entirely by correspondence. Now the mill men or their representatives are in the city all of the time. They make the goods and they must sell them; it has now become a regular hustle for all hands on all sides, and to make as much money three times as much paper must be sold. There is no reason why such a firm as ours, however, should not always be able to make money, for composed of my brothers, Leo and Sigmund, and myself, we do all of our own buying, selling and bookkeeping, finding it necessary to have someone to do only our heavy work. We find that our business has been helped very much by putting in a stock of stationery supplies, for houses which buy their paper of us will buy their stationery of us also.

Changes, Removals and New Firms.

The *Citizens' Informant*, St. Louis, Mo., is a new paper.

Oil City, Pa., has a new afternoon paper called the *Press*.

The *Boston World*, Boston, Mass., is a new weekly paper.

Duluth, Minn., has a new paper called the *Social World*.

J. M. London, stationer, &c., Ardmore, I. T., has sold out.

Alex Von Lanberg, publisher, Syracuse, N. Y., has sold out.

Andrew C. Paul has opened a wall paper store at Lansford, Pa.

The *Blue Hill Weather Bulletin*, Boston, Mass., is a new paper.

The *Record*, Le Grand, Ia., is a new paper published by J. D. Adams.

The *Register*, Mt. Vernon, Ill., has been purchased by C. R. Truitt.

The plant of the *Record*, Temple, Tex., has been removed to Belton.

The *Central Magazine*, Cleveland, Ohio, is a new quarterly magazine.

The *Odd Fellows' Advocate*, Los Angeles, Cal., is a new monthly paper.

John Houston, publisher, Rossland, B. C., has sold out to David B. Bogle.

Harlin & Emslie, publishers, Berkeley, Cal., have dissolved partnership.

Brown Brothers have started in the stationery business at Springfield, Mo.

The *Democrat*, Driftwood, Ind., is a new paper published by S. M. Denison.

Dayton, Ohio, has a new monthly publication called *Everybody's Magazine*.

The *Ocean Breeze*, Harpswell, Me., is a new paper published by C. W. Abbott.

A. B. Hoyt has opened a stationery, newspaper and book store at Danbury, Conn.

The *West Philadelphia Courier*, Philadelphia, Pa., is a new weekly publication.

The L. P. Coyne Publishing Company, East St. Louis, Ill., has been incorporated.

The Great Western Printing Company, Minneapolis, Minn., has been incorporated.

Joliet, Ill., has a new paper called the *Morning Post*, published by H. J. Weber.

C. B. Moore, dealer in wall paper, Greenport, N. Y., has sold out to Geo. W. Flack.

The Hammerschlag Manufacturing Company has filed articles of incorporation with the clerk of Hackensack County, N. J., and will engage in the manufacture of all kinds of paper at Garfield, N. J. This company has hitherto made a specialty of waxed paper.

George H. Nichols, publisher of the *Sun*, Rock Valley, Ia., has sold out to Charles L. Miller.

The *Evening Telegram*, Fayetteville, N. C., is a new paper published by W. E. Clark.

The *Advertiser*, Mason, Mich., is a new paper published by H. J. Darling and F. C. Perry.

The first issue of the *Jeffersonian*, Jefferson, N. H., for the present season has appeared.

Bay View, Mich., is to have a daily paper called the *Bay View Assembly Daily Herald*.

W. F. Knowles, bookseller and stationer, Virginia, Ill., has been succeeded by Elijah Needham.

J. L. Meader & Son, booksellers and stationers, Albion, Mich., has sold out to Geo. W. Craver.

The Oskaloosa News Company, printer, Oskaloosa, Ia., has sold out to Dunnell Brothers.

W. R. White, publisher of the *Herald*, Geneseo, Kan., has been succeeded by H. K. Peurak.

S. W. Bowman, bookseller and stationer, Norfolk, Va., has been succeeded by Bowman & Hare.

Hallett Brothers, dealers in wall paper and twine, Boston, Mass., have dissolved partnership.

The plant of the *News*, Fleming, Ky., has been bought by J. P. McCartney and Robert Sousley.

The *Age-Herald*, Birmingham, Ala., has been purchased by T. H. Aldrich for an Eastern syndicate.

Ramey, Wagner & Co., lithographers, St. Joseph, Mo., have been succeeded by Ramey, Wagner & Dean.

Edward W. Scripps and Paul H. Blades have been admitted to an interest in the *Record*, Los Angeles, Cal.

The *North Carolina Farmer*, Raleigh, N. C., is a new paper published by Wade T. Hampton and Wiley A. Jones.

E. L. Sleeper & Co., booksellers, stationers, &c., Ouray, Col., have sold out to Fred. Hersinger and Wassie Quiggle.

J. M. Fletcher has purchased the good will and subscription list of the Syndicate Publishing Company, Nashua, N. H.

T. H. Averett, bookseller, stationer and job printer, Danville, Va., has sold out to R. W. Blair and J. Overton Boatwright.

The *Redlander*, Redlands, Cal., is a new paper which has succeeded the *Cricket*. Fay G. Flint and A. H. Corman are the publishers.

George Elder, formerly of the firm of Elder & Norton, dealers in wall paper, Philadelphia, Pa., will start again in the wall paper business in that city.

E. H. Andrews & Son, dealers in wall paper, Clinton, Ia., have made an assignment to A. H. Paddock. Liabilities, $2,168; assets, $3,742.

The *Saturday Telegram*, Manchester, N. H., has been purchased by Stilson Hutchins, who, it is said, will publish a morning and evening paper.

The Dramatic Newspaper Company of the City of New York has been incorporated. Capital $25,000, and directors, Anson P. Pond, Frederick M. McCloy and Leander Richardson, of New York.

George E. Callender & Co., paper manufacturers and mill agents, 132 Nassau street, New York, have dissolved partnership. George E. Callender will continue the business and will sign in liquidation.

The *Register*, New Haven, Conn., has been sold, but the names of the new proprietors are withheld at present. Col. N. G. Osborn and J. D. Jackson, editor and business manager respectively, will continue with the paper.

The interests of the *Press* and the *Saratogian Republican*, Saratoga, N. Y., have been consolidated, and these papers will hereafter be published under one management, the former as an evening paper and the latter as a morning daily.

The Commercial Exchange has been incorporated to carry on the business of printing, publishing, manufacture, importing and selling merchandise of all kinds in New York city. Capital, $30,000, and directors, T. J. Van Horen, John E. Andrews, Robert B. McIlvain, of Brooklyn; John K. McDonald and John H. Jacobs, of New York.

The Howland-Stark Company, Bridgeport, Conn., has purchased the stock of stationery and other goods in the store recently conducted by Slason & Russell. There seem to have been some difficulties arising out of the sale. The firm of Slason & Russell had met some reverses, and it was said to be insolvent; but thus far this does not appear to be the case. The Howland-Stark Company purchased the stock of

goods with the understanding that it was unincumbered.

The firm of Crocker, Burbank & Co., paper manufacturers, Fitchburg, Mass., has been dissolved by the death of G. H. Fay. The remaining partners will continue under the same style.

An amendment to the charter of the Fort Scott Paper Mill Company, Fort Scott, Kans., has been filed indicating that the company will hereafter be known as the Fort Scott Paper Company. Capital stock, $75,000, and directors, George M. Beck, G. H. Voedesch, Minnie Voedesch, Otto Couch and Lucy M. Beck.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D., trust deed, and Real, a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
Bryson & Welch, Portland, Me.	$350

MIDDLE STATES.

Jerome E. Stewart, Troy, N. Y.	700
Emery S. Pugh (Emery S. & Eugene Pugh), Utica, N. Y. (B. S.)	300

WESTERN STATES.

W. Bracke, Sebastopol, Cal. (B. S.)	1,300
W. S. Warnock & Co., Chicago, Ill.	1,200
S. W. Kessinger, Litchfield, Ill. (Real)	1,000
T. B. Hotchkiss, Lake City, Ia.	440
Chas. S. Davis (*Tribune*), Junction City, Kan. (B. S.)	3,750
Benno Muehlen, Grand Rapids, Mich.	100
Walter H. Cobban, Minneapolis, Minn.	900
F. S. Jacoby (Mrs.), St. Paul, Minn. (B. S.)	175
John Redline, Chester, Neb.	350
T. R. Fay, Wapakoneta, Ohio	1,088
John Shingle, Salt Lake City, Utah	280

SOUTHERN STATES.

R. Overshiner, Windsor, Mo.	350

CANADA.

H. A. McKnight, Spring Hill, N. S. (B. S.)	100

LIENS DISCHARGED.

C. A. Warwick & Co., Boston, Mass.	100

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, August 9, 1895.

THE MONEY MARKET.—The stock market was quiet, and a bare majority of moving shares closed at higher figures. Call loans on stock collateral were inactive and easy, there being a large supply of such money at 1 per cent. at the Stock Exchange. In time loans the conditions are noticeably easier for borrowerers. Quotations on good collateral are 1½@2 per cent. for thirty to sixty days, 2@2½ per cent. for ninety days to four months, and 2¾@3 per cent. for five to seven months. The market for commercial paper was not so well supplied. Rates are 3 per cent. for sixty to ninety days' bills receivable, 3½@4 per cent. for four months' commission house names and 3¾@4 per cent. for prime four months' single names, 4@4½ per cent. for prime six months' and 4½@5 per cent. for good four to six months' single names. A leading bank officer ventures the opinion that the available paper in the market would be taken up in an hour should the five large banks now out of the market become buyers of notes. The foreign exchange market was dull, firm and unchanged. Posted rates were $4.90 for sixty days and $4.91 for sight. Actual rates were $4.89½@4.89⅔ for sixty days and $4.90¼@4.90½ for sight.

THE PAPER TRADE.—Reports from various parts of the country as to the condition of the paper trade are encouraging. To the Eastward a better movement is to be noted, and from the West there come reports showing a more active demand for goods. Local trade, which aggregated very fairly for July, and in many cases much more than fair, keeps along steadily, some houses, however, reporting that this month has opened rather slow. But then not a great deal is expected of August. Manufacturers report a better feeling and more actual business. Low water prevails at some points and restricts production, so that orders are not being filled as promptly as desirable. News is in very good call, and the product is close under orders, so that so far as the market is concerned, the makers who are endeavoring to form a combination have a substantial foundation. Book is perhaps in the worst position of any grade, and while many mills are well cared for so far as orders are concerned, prices are not at all satisfactory. The Standard Straw Board Company, the new selling agent for the strawboard mills, will begin business next week, on the 15th, and at present prices in this line are firm.

JUTE BUTTS.—The market for Jute Butts is quiet. The statistical position as given by Cabot, Ray & Co. is as follows: Imported to the United States, 1892, 232,387 bs.; 1893, 331,738 bs.; 1894, 228,765 bs. Consumed in the United States, 1892, 222,609 bs.; 1893, 368,336 bs.; 1894, 234,915 bs. Stock on hand, New York and Boston, January 1, 1895, none. Imported, New York and Boston, since January 1, 1895, 357,916 bs.; 1894, 134,010 bs.; 1893, 308,751 bs. Stock, New York and Boston, August 1, 1895, 2,300 bs.; 1894, none; 1895, 19,734 bs. On passage for United States, July 4, 1895, 39,300 bs., and by cable to July 31, 1895, none; 1894, 74,782 bs.; 1893, 31,297 bs. Visible supply to December 1, four months, 41,600 bs.; 1894, 74,782 bs.; 1893, 51,031 bs. Consumption since January 1, 1895, 355,616 bs.; 1894, 140,160 bs.; 1893, 331,765 bs. Delivered to consumers past thirty days, 48,983 bs.; 1894, 4,651 bs.; 1893, 7,535 bs. The same firm speaks of the market as follows: "Market for the month in Calcutta has been weak; sales light, the crop news favorable. Market nominal at 1 1-16@1⅛c. for shipments. Sailings for July, 7,400 bs. Deliveries to consumers for the month have been: To bagging manufacturers, 38,007 bs.; to paper manufacturers, 10,976 bs. Spot stock, 2,300 bs. paper quality. Supply to December 1, paper quality, 12,510 bs. Owned by bagging manufacturers, 29,090 bs."

WOOD PULP.—Ground Wood is scarce, and with the product restricted some paper mills are having very hard work to obtain needed supplies.

WOOD FIBRE.—The market for Soda Fibre remains in a demoralized condition, and prices are irregular. The low figures have stimulated prices to some extent, and some large stocks have been considerably reduced, although they are yet ample enough to be burdensome. Domestic Sulphite is unchanged, and low prices rule, although mills making high grade goods are able to sustain their values and to have good business. Domestic Bleached Soda is quoted at 1¼@2¼c., as to quality. Domestic Sulphite is quoted at 1¾@2¼c., as to quality, for Unbleached, and 3c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.60@2.75c.; Bleached, same process, 3½@3.90c.; Unbleached, sulphite process, ——@3.15c.; Bleached, do., 3⅛@4c.; Bleached Straw Pulp, 3.80c. This week there were 130 tons of Chemical Fibre imported, being 60 tons from Antwerp and 70 tons from Hull.

FOREIGN RAGS AND PAPER STOCK.—There is a small, steady call for foreign rags, most of the buying being of a hand to mouth character. Several hundred tons of Blue Cottons have been sold to arrive at 1.10c., and we note sale of 25 tons SPF's, to arrive, at 2¼c. Imports for the week aggregated 2,763 bales and 130 tons, being 629 bs. rags, 130 tons chemical fibre and 2,134 bs. manillas. Ports of shipment and quantities are as follows: Antwerp, 30 tons chemical fibre; Dundee, 95 bs. manillas; Hamburg, 422 bs. rags, 235 bs. manillas; Hull, 86 bs. rags, 70 tons chemical fibre, 385 bs. manillas; Liverpool, 904 bs. manillas; London, 91 bs. rags, 133 bs. manillas; Rotterdam, 30 bs. rags, 382 bs. manillas.

DOMESTIC RAGS.—There is a moderate trade in progress and well-known packings hold their price very well.

BAGGING, &c.—The market for Gunny is quiet, and quotations range from 97½@1.02½c., with sales at both figures, all on spot. Manilla Rope is in fair movement and prices rule as they have been, with Solid Domestic quoted as high as 2½c. No. 1 Mixed Bagging is in fair call and ranges about 85c. Manilla imports for the week aggregated 2,134 bales, being 95 bs. from Dundee, 235 bs. from Hamburg, 385 bs. from Hull, 904 bs. from Liverpool, 133 bs. from London, and 382 bs. from Rotterdam.

OLD PAPERS.—Hard White Shavings, Mixed Shavings and Manillas are in good call, especially the latter, which are somewhat scarce. We quote: No. 1 Hard White Shavings, 2.15@2½c.; No. 1 Soft White do., strictly free from wood, 2@2.05c.; Soft White do., ordinary, 1⅞@2c.; Old Ledgers, 1⅞c.; Solid Printed Books, 1¼c.; Mixed Shavings, No. 1, 1@1½c.; Mixed Shavings, No. 2, ¾c.; Extra No. 1 Manillas, 90c.; No. 1 Manillas, ordinary, 75c.; No. 2 Manillas, 60c.; Light Book Stock, 60c.; Folded News (overissues), 50@55c.; Mixed Papers, 35c.; Commons, 25@30c.; Straw Clippings, 45c.; Binders' do., 45c.

STRAW.—Straw is quiet and easy. We quote: Long Rye at 55@60c.; Short Rye at 45@50c.; Wheat at 40@50c.; Oat at 40@50c.

ROSINS.—Trading is light, but prices are steady. We quote: Common to Good Strained, $1.77½@1.82½; E, $1.90½@1.95; F, $2.05; G, $2.15; H, $2.30; I, $2.50; K, $2.65; M, $2.90@2.95; N, $3.@3.05; W G, $3.20@3.25.

CHEMICALS.—The market is generally quiet. Under date of July 26, Peter R. McQuie & Son speak of the Liverpool market as follows: "Though the actual business transacting in chemicals is at present restricted, the atmosphere is charged with electricity; not so much due, however, to the several electrolytic processes, which are now being subjected to thoroughly commercial as well as practical experiment, but rather owing to certain proposed combinations on a very important and far-reaching scale. Of these, two are especially to the fore—one between a few leading ammonia soda manufacturers in this country, and another between various English and Continental Leblanc Works embracing the bulk of that particular trade. And, while the ultimate consummation of the latter is yet an open question, it is generally considered that the former will soon be completed and in operation. Already the shares of the interested companies show a marked advance in value, and it is also noticeable that there is a great difficulty in securing reasonable quotations on Soda Ash and other chemicals for next year's delivery. We quote to-day: Bleaching Soda, £7 to £7 5s. per ton; Caustic Soda, 60 per cent., £6 10s. per ton; 70 per cent., £7 10s. per ton; 74 per cent., £8 10s. per ton; 76 per cent., £9 10s. per ton; Soda Ash, Leblanc, nominally, £3 10s. to £4 per ton; 58 per cent., Ammonia Alkali, £3 per ton, in bags; £3 5s., in casks; Soda Crystals, £2 5s. per ton." Under date of July 24 J. P. Brunner & Co. speak of the same market as follows: "In heavy chemicals there is not much actual business doing on the spot, but the principal topic of interest here is in the numerous rumors respecting combinations on the part of chemical makers both here and abroad. It is reported to-day that the leading ammonia ash makers in this country have actually come to some arrangement at last. No actual details are to hand so far, however. If correct, it is not anticipated that any immediate advance in prices will be made for early delivery, although higher figures are expected for forward business over 1896. Soda ash in moderate demand and quotations unchanged, the spot range for tierces being about: Leblanc Ash, 48 per cent., £3 10s. to £3 15s. per ton; 58 per cent., £3 15s. to £4 per ton, net cash; Ammonia Ash, 48 per cent., £3 to £3 5s. per ton; 58 per cent., £3 5s. to £3 10s. per ton, net cash. Bags, 5s. per ton less. Soda Crystals are in good request and quoted at £2 3s. 9d. to £2 5s. per ton, less 5 per cent. for barrels. Makers are reported to be very fully sold for early delivery. Caustic Soda rather more inquired for, but still far from active. We quote: Sixty per cent., £6 5s. to £6 10s. per ton; 70 per cent., £7 5s. to £7 10s. per ton, net cash; 74 per cent., £8 5s. to £8 10s. per ton; 76 per cent., £9 5s. to £9 10s. per ton, net cash. Bleaching Powder dull and for hardwood packages quotations range from £7 to £7 5s. per ton, net cash, according to destination." The local market for prime Bleaching Powder is about bare and supplies bring full prices. The Alkali trade keeps up very well and prices are regular. Caustic Soda is rather slow, but values are firm for high test. Sal Soda has been in improved demand. During the week there have been sales of Bleach at 1.80@1.87½c.; Soda Ash at 1½c.; Caustic Soda, 2.10c., and Alkali, .90@1.05c.

CHINA CLAY.—There has been no change in the situation since last week. The supply of extra grades is limited, but there is plenty of ordinary stock on the market. For the latter the demand is slow and prices are somewhat nominal. The quoted range remains $11@16 per ton, as to quality and quantity.

TWINES.—Supplies are moving in a very regular way. We quote: Sisal Hay Rope, 5½c.; Sisal Lath Yarn, 5c.; Jute Ready, 5@6c. Twines—Jute, 18, 10½@11c.; 24, 10@10c.; 36, 9@9½c.; Jute and Hemp, 18, 13@14c.; 24, 12½@13½c.; 36, 12@13c.; Hemp, 18, 16c.; 24, 15½c.; 36, 15c.; Marlines, Jute, 4½, 9c.; 6, 8½c.; 8, 7½c.; Jute and Hemp, 6, 11c.; 8, 9c.; American Hemp, 4½, 14c.; 6, 13c.; 8, 12c.; Russian Hemp, 4½, 14c.; 6, 13c.; 8, 12c.

COAL.—The conditions governing the coal market are unchanged, and producers have not yet been able to come together.

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PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS' SELLING PRICES.

Ledger and Record	$0.16	@	$0.21
Flat Caps, superfines	11½	@	14
Flat Caps, fines	11	@	13
Flat Caps, engine sized	7	@	9
Blotting, American	8	@	12
Blotting, English	17	@	....
Book, super sized and calendered	5	@	8
Book, super sized and tinted	5	@	8
Book, extra machine finish	5	@	....
Book, machine finish, low grade	4½	@	5
News	2½	@	3
Poster	3	@	....
Hanging, superfine, No. 1	8	@	10
Hanging, superfine, No. 2	6	@	8
Hanging, machine satin	4	@	4½
Hanging, white blank, No. 1	4	@	4½
Hanging, curtain	3½	@	4
Hanging, brown	2½	@	3
Colored papers, double mediums	6½	@	8
Colored papers, glazed medium	7½	@	8½
Colored papers, tobacco	8½	@	9¼
Colored papers, tissues, 20×30, ℔ ream	1.10	@	1.35
Tissues, black, 20×30, ℔ ream	1.40	@	1.50
White tissue, 20×30, ℔ ream	60	@	80
Manillas, Flour sack, cream	10½	@	....
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6¾
Manillas, No. 1, heavy weight	6¼	@	6⅞
Manillas, No. 2	5	@	6
Manillas, Bogus	2¾	@	3½
Wrapping Parchment	16	@	....
Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion	55	@	60
Hardware, light colored, No. 1	4¼	@	....
Hardware, No. 1, glazed, tarred	4½	@	....
Hardware, No. 1, glazed	4	@	....
Binders' Boards, ℔ ton, No. 1	70.00	@	90.00
Binders' Boards, ℔ ton, No. 2	30.00	@	40.00
Strawboards, air dried, No. 1, ℔ ton	40.00	@	....
Strawboards, steam dried, No. 1, ℔ ton f. o. b. mill	....	@	....
Straw Wrapping, basis, 15×20, 15½ lbs., 20 sheets—			
36×40, from 38 to 42 lbs. ℔ rm	65	@	....
30×40, from 30 to 34 lbs. ℔ rm	....	@	50
24×36, from 24 to 26 lbs. ℔ rm	....	@	48
22×32, from 24 to 26 lbs. ℔ rm	45	@	....
20×30, 21 lbs., ℔ rm	....	@	34
20×30, from 14 to 17 lbs. ℔ rm	26	@	....
16×22, from 12 to 13 lbs. ℔ rm	23	@	....
18×28	....	@	24
15×20, 10 lbs. ℔ rm	....	@	17
15×20, from 7 to 8½ lbs. ℔ rm	....	@	13
14×18	....	@	12
12×16	....	@	11
11×15	....	@	10
Straw Wrapping, ℔ lb., heavy weight	1.75	@	1.85
Straw Wrapping, ℔ lb., light weight	1¾	@	....
Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book	21.00	@	30.00
Tea Papers, 16 sheet quires—			
12x18	....	@	14
14x20	....	@	18
Card Middles, ground wood	5¼	@	6¾
Card Middles, long fibre wood	8¼	@	9
Card Middles, rag and wood	6	@	9
Pulp Lined Boards, single manilla, No. 100 and heavier	42.50	@	....
Pulp Lined Boards, double manilla, No. 100 and heavier	47.50	@	....

Woolen Rags.

Comforter Stock	....	@	....
White Woolens	8	@	....
Blue Gray Stockings	....	@	8
White Stockings	10	@	12
Blue Flannels	6	@	....
Reds, old	5½	@	6
Reds, new Shirt Clippings	15	@	16
Mixed Softs, free of Carpets	4½	@	5½
Seamed Cloth	....	@	3½
Skirted Cloth	3½	@	....
New Cloth Clips	7	@	9
New Satinets, clean stock	1¼	@	1¾
Satinets, old	65	@	75
Seams	1	@	1¾
Delaines, stripped for extract	1½	@	2
Blankets, Woolen	2½	@	2⅝
Wool Carpets	1½	@	2
White Linseys	5	@	6
Mixed Linsevs	75	@	1

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	4¼	@	....
Mill Assorted Whites	3½	@	3⅝
Unbleached Muslins	4⅝	@	4¾
City Whites, No. 1	3	@	3¼
New Seconds, light	2½	@	....
New Seconds, dark	1¾	@	2
No. 2 Whites	¾	@	1.15
Cotton Canvas, No. 1	3	@	....
Linen Canvas, No. 1	....	@	2¼
Country Mixed, free of Woolens	60	@	....
Seconds (City)	....	@	....
Colors, ℔ 100 lbs	....	@	....
Manilla Rope	....	@	2
Manilla Rope, tarred	....	@	....
Gunny Bagging, No. 1	1.10	@	1.20
Mixed Bagging, No. 1	⅞	@	1
Burlap Bagging, No. 1	1.10	@	1.15
Kentucky Hemp Bagging	....	@	....
Tar Shakings	1	@	....
Hemp Twine Stock	....	@	....
Jute Waste	¼	@	1¼

Shavings and Old Paper.

White Collar Cuttings	3	@	....
White Envelope Cuttings	3¼	@	....
Hard White Shavings, No. 1	2½	@	3
Soft White Shavings, strictly free from wood	2.15	@	....
Soft White Shavings, ordinary	1⅞	@	2
Mixed Shavings, part white	1	@	1½
Ledger and Writing	2	@	2.10
Solid Stock	....	@	1½
Book Stock, No. 1 light	....	@	1¼
Old Newspapers	40	@	....
Manillas No. 1	....	@	1.15
Manillas No. 2	80	@	....
Mixed Manillas	60	@	....
Hardwares, No. 1	65	@	....
Mixed Papers	40	@	....
Commons	25	@	30
Binders' Board Cuttings	50	@	....
Strawboard Cuttings	45	@	50

English Rags, &c

New Cuttings, cotton	5	@	5½
London Fines, cotton	3⅞	@	4
Outshots, cotton	2¾	@	3
Seconds	1½	@	1.65
Thirds	1¼	@	1½
New Print Tabs	2¾	@	3
Checks and Blues	2¼	@	2¾
Light Prints	1½	@	1¾
Light Fustians	2	@	2¼
Dark Fustians	1¼	@	1⅞
Black Calicoes	1½	@	1¾
First Canvas Linen	3¼	@	4
Second Canvas Linen	3	@	....
Gunny Bagging, No. 1	1	@	1.02½
Mixed Bagging, No. 1	80	@	85
Burlaps Bagging, No. 1	....	@	1.20
Rope, Manilla	1.95	@	2
Rope, Manilla, tarred	....	@	2
Jute Threads	....	@	1⅞
Clean Jute Ropes	2	@	2⅛
Mixed Rope	1½	@	1¾
Flax Tow	1¼	@	1⅝

English Old Papers and Shavings.

Hard Shavings, No. 1	2	@	....
Soft Shavings, No. 1	2¼	@	2½
White and Colored Shavings, No. 1	1¾	@	1⅞
White and Colored Shavings, No. 2	1	@	1⅛
Cream Post Shavings	2½	@	....
Paper Collar Cuttings	....	@	2
Briefs and Letters	1⅝	@	1¾
Books and Pamphlets	1.10	@	....
Old Newspapers	....	@	....
Broken News and Letters	⅞	@	1
Old Blank Books	2¼	@	2½
White and Buff Railway Sheets	1¾	@	....

Hamburg Rags, &c.

N S C, New Shirt Cuttings	....	@	4¼
S P F F, No. 1 Linens	....	@	3½
S P F F, No. 2 Linens	....	@	3½
S P F, No. 3 Linens	2	@	2¼
F G, No. 4 Linens	....	@	2
F F, No. 5 Linens	1¾	@	1.85
Extra Fine Blue Linen, light color	2	@	....
L F B, Blue Linens	2¼	@	....
C S P F F F, No 1 Cottons	....	@	3½
C S P F F, No. 2 Cottons	....	@	2⅞
C S P F, No. 3 Cottons	1⅞	@	....
C C C, Colored Cottons	....	@	75
C F X, Low grade Cottons	....	@	75
Extra Fine Blue Cottons	....	@	1½

Pulps and Fibres.

Ground Wood, domestic, delivered	1	@	1.35
Ground Wood, foreign, ex dock	....	@	....
Soda Fibre, domestic, unbleached	....	@	....
Soda Fibre, domestic, bleached	....	@	2½
Soda Fibre, foreign, unbleached	2.65	@	3
Soda Fibre, foreign, bleached	....	@	....
Sulphite, domestic, unbleached	1¾	@	2¼
Sulphite, domestic, bleached	3½	@	....
Sulphite, foreign, unbleached	2¼	@	3⅛
Sulphite, foreign, bleached	....	@	....

Japanese Rags.

Blues, Hiogo, ex store	1.30	@	....

Chemicals, Coloring Materials, &c.

Alkali, 58 ℔ cent	1	@	1.20
Alum, lump	1.65	@	....
Alum, ground	1.75	@	....
Alum, Keystone	1¾	@	¼
Alum, Diamond	....	@	2½
Alum, pearl	2¾	@	2¾
Alum, porous	2½	@	2¾
Alum, Merrimac porous	2	@	....
Aluminous Cake	....	@	1¼
Anti-Chlorine	....	@	2¼
Bichromate Potash, American	....	@	10
Bleaching Powders, spot	1.85	@	1.95
Cambridge Ochre	11.25	@	....
Caustic Soda, 60 ℔ cent	2.30	@	2.30
Clay, China, English, ℔ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ℔ ton	9.50	@	10.00
Clay, Terra Alba, French, ℔ cwt	1.00	@	1.12½
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	3	@	3½
Copperas, American	....	@	80
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	....	@	9½
Potato Starch	4½	@	4¾
Prussian Blue, dry	20	@	35
Prussiate Potash, American	....	@	24½
Rosins, common to good strained, ℔ bbl	1.77½	@	1.82½
Rosins, E, ℔ bbl	1.90	@	....
Rosins, F, ℔ bbl	2.05	@	....
Rosins, G, ℔ bbl	....	@	2.15
Rosins, H, ℔ bbl	2.30	@	....
Rosins, I, ℔ bbl	2.50	@	....
Rosins, K, ℔ bbl	2.65	@	....
Rosins, M, ℔ bbl	2.90	@	2.95
Rosins, N, ℔ bbl	3.05	@	....
Rosins, W G, ℔ bbl	3.20	@	3.35
Sal Soda	1.10	@	....
Soda Ash Caustic, 48 ℔ cent	1.60	@	1.65
Soda Ash, carbonated, 48 ℔ cent	1.57½	@	1.70
Soluble Blue	40	@	55
Spanish Brown	½	@	1
Sugar Lead, white	12	@	....
Sugar Lead, brown	7	@	....
Sulphate of Alumina	....	@	2½
Sulphuric Acid, 66 ℔ cent	1	@	1¼
Ultramarine, blue	14	@	17½
Venetian Red	1	@	1½
Vitriol, blue	5½	@	5¾
Yellow Ochre Rochelle	1.35	@	1.50

BOSTON MARKET.

Paper Stock.

White Rags, No. 1	3½	@	3⅞
No. 2 Whites	2½	@	2¾
Common Seconds	1½	@	2½
Thirds and Blues	1½	@	1⅝
Southern Mixed Rags	80	@	90
Colors, country	½	@	¾
Colors, city	35	@	30
New Calicoes, light	1½	@	1¾
New Calicoes, dark	1	@	1½
Shirt Cuttings, best	3⅞	@	4¼
Shirt Cuttings, good	3¼	@	3¾
Shirt Cuttings, unbleached	3¼	@	3½
Shirt Cuttings, unbleached No. 2	2	@	2½
Shirt Cuttings, cheviots	2½	@	2¾
Overall Cuttings, blue	2½	@	2¾
Overall Cuttings, brown	1½	@	1⅞
Shoe Rags, bleached	3½	@	3¾
Shoe Rags, unbleached	3¼	@	3½
Shoe Rags, brown	2¾	@	2⅞
Cotton Flannels, bleached	3	@	3½
Cotton Flannels, unbleached	3½	@	3¾
Corset Rags, drab	3½	@	3¾
Corset Rags, white	4	@	4½
Tailors' Seconds	1¾	@	1⅞
Tailors' Colors	20	@	25
Cotton Canvas	2½	@	2¾
Cotton Canvas, No. 2	1¾	@	1½
Linen Canvas	1½	@	1¾
New Canvas Cutting	3¼	@	3½
Insole Canvas	3	@	3¼
Print Papers, best	30	@	35
Folded News	40	@	45
Old Waste Papers	25	@	30
Manilla Paper, No. 1	1.10	@	1.15
Manilla Paper, good mixed	85	@	95
Manilla Paper, blues	65	@	70
Mixed Book Stock	95	@	1.00
Books and Pamphlets	1.10	@	1.15
Book Stock, light	65	@	70
Ledgers and Letters	1.85	@	1.90
Soft Book Shavings	1¾	@	2½
Hard White Book Shavings	3½	@	3¾
Leather Board Chips	70	@	75
Straw Chips	35	@	40
Shivey Bagging	1¾	@	1½
No. 1 Factory Bagging	1.00	@	1.10
Burlap Bagging	1.00	@	1.10
Burlap Bagging, large pieces	1½	@	2½
Kentucky Bagging	1	@	1½
Mixed Bagging	½	@	¾
No. 2 Bagging	½	@	¾
Shakings, soft	½	@	¾
Tarred Shakings	1	@	1¼
Standing Rigging	2½	@	2¾
Standing Rigging, foreign	2½	@	2¾
Bolt Rope	2	@	2.05
Oakum Junk, No. 2	1½	@	1¾
Tarred Paper Junk	1.15	@	1.20
Tarred Paper Junk, inferior	½	@	⅝
Manilla Rope	1¾	@	1⅞
Tarred Manilla	1¾	@	1¾
Hemp Strings	1	@	1¼
Sisal Strings	1.15	@	1.20
Wool Strings	1.10	@	1.15
Flax Tow	½	@	⅝
Flax Waste	⅜	@	⅝

New Papers.

Superfine Book	....	@	....
Fine Book	....	@	....
News, rag and wood	....	@	....
Manilla, Cream Rope	....	@	....
Manilla, No. 1, Rope	....	@	....
Manilla, Extra Jute	....	@	....
Manilla, Jute and Gunny	....	@	....
Manilla, No. 2	....	@	....
Manilla, Bogus	....	@	....
Hardware, No. 1, tarred	....	@	....
Hardware, No. 2	....	@	....
Hardware, red	....	@	....
Strawboards, air dried, ℔ ton	....	@	....
Strawboards, steam dried, ℔ ton	....	@	....
Straw Wrapping, heavy	....	@	....
Straw Wrapping, light	....	@	....
Binders' Boards, ℔ ton	....	@	....
Leather Board, Common, ℔ lb	....	@	....
Leather Board, counter	....	@	....
Leather Board, extra	....	@	....
Tar Boards, ℔ ton	....	@	....

Chemicals.

Alkali	92½	@	1.00
Aluminous Cake, currency	1¼	@	1½
Alum, American ground	1.65	@	1.70
Alum, American lump	1.60	@	1.65
Anti-Chlorine	2	@	2½
Bichromate Potash	9	@	9½
Bleaching Powder	1.82½	@	2
Caustic Soda, 74 ℔ cent	2	@	2½
Clay, English, ℔ ton	13.00	@	17.00
Clay, American, ℔ ton	10.00	@	11.00
Copperas, ℔ lb	50	@	55
Extract Logwood	5½	@	10½
Lime, Rockland, ℔ bbl	85	@	90
Prussian Blue, ℔ lb	36	@	38
Prussiate Potash, yellow	18	@	18½
Prussiate Potash, red	36	@	38
Rosin, common strained, ℔ bbl	1.90	@	2.50
Rosin, Medium	2.20	@	3.00
Rosin, extra pale, ℔ bbl	3.00	@	4.50
Sal Soda, ℔ lb	70	@	75
Soda Ash, 48 ℔ cent. caustic	1.30	@	1.50
Soda Ash, 48 ℔ cent. carbonated	1.00	@	1.25
Soluble Blue	3.50	@	3.50
Sugar Lead, white	8½	@	....
Sugar Lead, brown	5½	@	9
Sulphuric Acid, 66°	¾	@	1¼
Terra Alba, ℔ ton	9.00	@	15.00
Ultramarine, ℔ lb	7	@	25
Venetian Red, ℔ lb	1½	@	2½
Vitriol, Blue	3½	@	....
Yellow Ochre	½	@	1

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Twenty-five words or less, one dollar each insertion. Over twenty-five words, four cents a word each insertion, up to eighty words. Cash should accompany order.

Over eighty words, or displayed advertising, will be charged for by the inch, according to our regular schedule of rates.

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INFORMATION WANTED AS TO WHEREabouts of Charles Stevens, machine tender; disappeared from Bloomfield, N. J., July 22. Address MRS. CHARLES STEVENS, Bloomfield, N. J.

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WANTED—EXPERIENCED MAN TO RUN friction calenders; state age, experience and salary desired. Address MANUFACTURERS, care of Paper Trade Journal.

WANTED—ABOUT TEN CYLINDER DRYERS, 48 inches long, about 28 or 30 inches diameter. MOUSAM MANUFACTURING CO., Kennebunk, Me.

WANTED—AN ENGINEER USED TO BEATing wood tissue; steady work; references required. Address B., Paper Trade Journal.

WANTED—SITUATION BY MACHINE TENDer; fifteen years' experience on news and manilla; can keep machine in repair as well as make quantity and quality; best reference. Address Box 154, Berlin, N. H.

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WANTED—MILLWRIGHT WITH TOOLS and one who understands paper mill work. Address M. M., care of Paper Trade Journal.

WANTED—CYLINDER MACHINE TENDER on tissue; married man with girls who can work in mill preferred. Address H. M., care of Paper Trade Journal.

WANT TO PURCHASE PAPER BAG AND bottle cover machinery. Address OAK CLIFF PAPER MILLS, Oak Cliff, Tex.

WANTED—A PAPER MACHINE ABOUT 48 inches wide. Address B., care of Paper Trade Journal.

WANTED—SITUATION, FINISHING; CAPable of taking charge; used to news, book and manilla. Address CAPABLE, care Paper Trade Journal.

WANTED—MILL TO FURNISH RAG PULP for responsible paper manufacturer. Address MANUFACTURER, care Paper Trade Journal.

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One 66 inch Fourdrinier machine, brass press rolls, twelve 3 foot dryers, chilled calender rolls.

One 66 inch Double Cylinder, three presses of gun metal, eighteen 28 inch dryers, three stacks chilled rolls.

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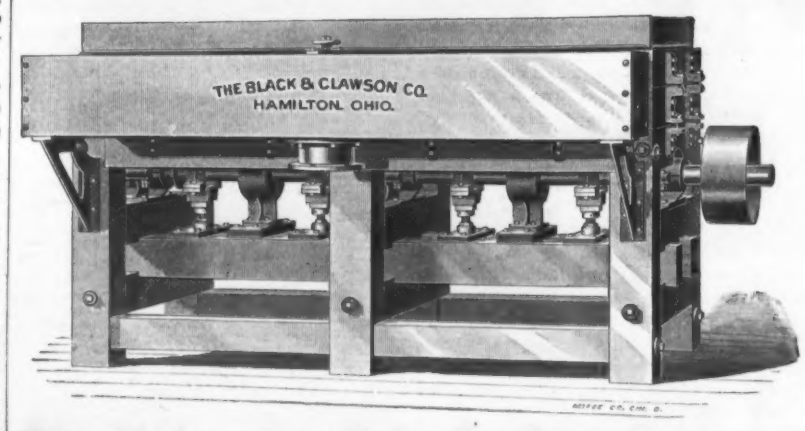

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Two new Jones double lighter beating and washing engines; iron rolls 52 inch face.

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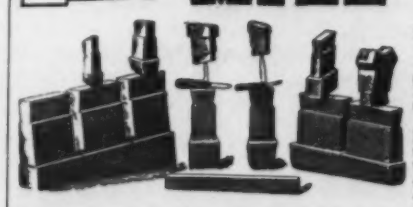

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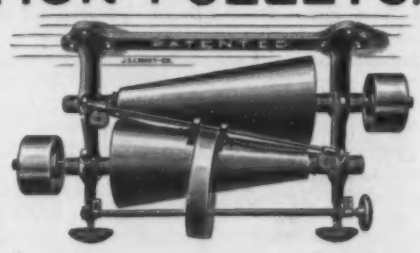

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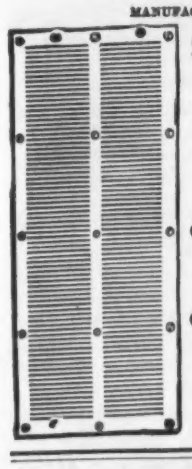

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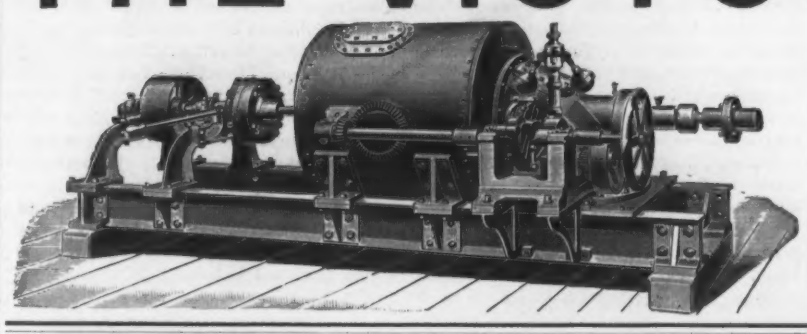

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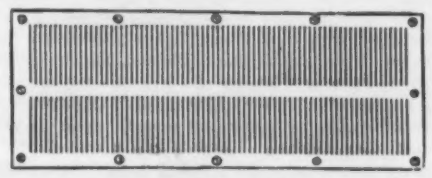

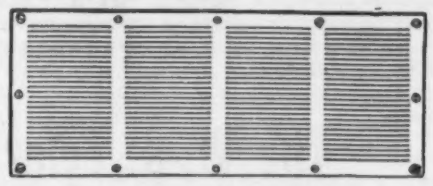

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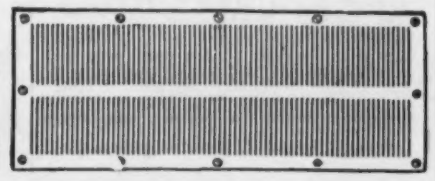

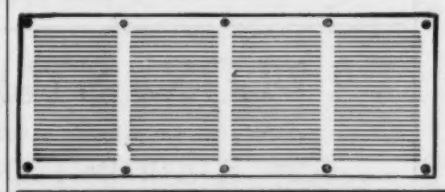

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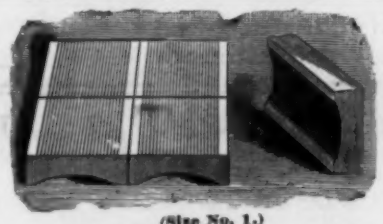

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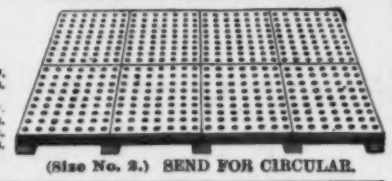

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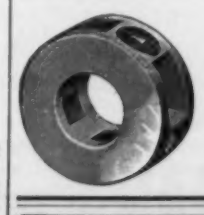

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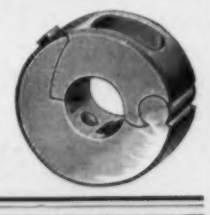

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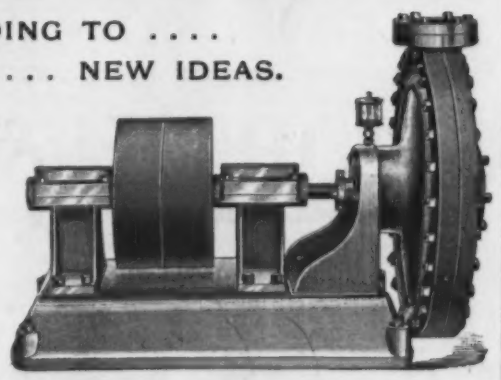

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Acting as an efficient water purifier and keeping the heating surface of the boilers clean, the result being FUEL SAVED.

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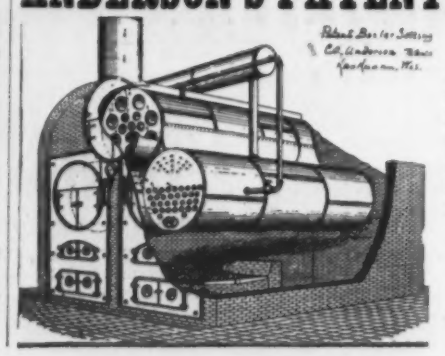

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(Dictated.) WINNEBAGO PAPER MILLS, W. L. DAVIS, Secy. and Treas.

Address all communications to

C. A. ANDERSON,

KAUKAUNA, WIS., U. S. A.

Manufacturing News.

EASTERN STATES.

The Winnipiseogee Paper Company, Franklin, N. H., has put in a 14x12 inch and a 12x10 inch suction pump for use with the paper machines; also 7x8 inch stuff pump for pumping stuff to the machines. These pumps were built by the Goulds Manufacturing Company, Seneca Falls, N. Y.

The Westport Paper Company, Westport, Conn., is placing in the new addition lately made to its mill considerable machinery, which will be used for making paper for gun wads.

The Bowdoin Paper Manufacturing Company, Brunswick, Me., is said to have closed a contract for supplying paper to a European firm for three years to come.

Last week the Fall Mountain Paper Company, Bellows Falls, Vt., started its log drive of 2,000,000 feet, which had been hung up at Woodville on account of low water.

The Jay Paper Manufacturing Company, Jay, Me., has ordered from the Goulds Manufacturing Company, Seneca Falls, N. Y., a 7x8 inch triplex pump for pumping stuff to the paper machines.

Instead of wasting the water used at its mill, the Riverside Paper Company, Glastonbury, Conn., has placed on the outside of its mill a tank, into which the water after being used in the mill will flow. The same water is to be used several times.

Recent rains at Middlebury, Vt., have enabled the pulp mills in that vicinity, which have been shut down for some time, to resume operations.

The plant is being prepared for a paper mill which is soon to start at South Norwalk, Conn.

The stone sluiceway of the mill of the Nashua River Paper Company, East Pepperell, Mass., was repaired last week.

MIDDLE STATES.

The Herkimer Paper Company, Herkimer, N. Y., has put in a 5x8 inch triplex pump for boiler feeding. The order was filled by the Goulds Manufacturing Company, Seneca Falls, N. Y.

The plant of the Diamond Mills Paper Company, Whippany, N. J., has been purchased by Patrick Farrelly, of Morristown, and it is said that a company will be organized to operate it.

The Saranac River Pulp and Paper Company, Plattsburgh, N. Y., is erecting an eight grinder pulp mill which is to be in operation by March. The water power is to be brought to a head of 67 feet.

W. H. Flaxington has leased the Phœnix Mill at Marcellus Falls, N. Y., from M. J. Lawless. This mill was destroyed by fire last February, but has been rebuilt and equipped with new and modern machinery, and will be ready to start up on August 15, with Henry Keefe as superintendent; it will manufacture lined and plain mill wrappers and heavy express and rope papers, the output to be 5 tons daily. The mill has water power of 200 horse power, and is equipped with three 600 pound beating and one Jordan engines, one 62 inch three cylinder machine, thirteen 36 inch dryers, a 3 ton rotary bleach boiler and two steam boilers.

The new paper and pulp mill at Newton's Falls, N. Y., intends to make its own ground wood and sulphite pulp, and probably to burn its own pyrites, and will turn out only the higher grades of manillas and tissue manillas. The capacity of the mill will be 18 tons of paper a day. Besides the machine room, which is 250x80 feet, there are the sulphite and the ground wood plants, boiler room and storehouses, three large boarding houses, twenty-five houses for private families, and a branch of the C. and A. Railroad in course of construction.

The Downingtown Manufacturing Company, East Downingtown, Pa., has advanced the wages of its employees 10 per cent.

The Freeman Wall Paper Company, Long Island City, N. Y., has leased the M. A. Baldwin-Douglas factory at West New Brighton, S. I.

The Abendroth & Root Manufacturing Company, 28 Cliff street, New York city, manufacturer of the improved Root water tube boiler, has been awarded a 626 horse power boiler contract from the Union Car Company, of Buffalo, N. Y., and a 500 horse power contract from the Reading Steam Heat and Power Company, of Reading, Pa. It is also erecting in New York a 300 horse power boiler in the College of Physicians and Surgeons, two boilers in the Baptist Home, one boiler in the Parmly Building, and two boilers for the Sing Sing Electric Lighting Company.

WESTERN STATES.

The brickwork on the mill of the Wisconsin River Paper and Pulp Company, Stevens Point, Wis., has been completed, and the tin roof is now being put in place. The machinery will soon be set up, and the mill throughout will be better than the one recently burned. Another solid brick structure, 40x120 feet, is to be begun at once, and will be used as a machine shop and wood room.

It is rumored that the site and water power of the Brooks & Ross Lumber Company, Schofield, Wis., are to be utilized for a new pulp mill.

The Waterhouse Paper Stock Company, Chillicothe, Ill., started up the Senachwine Mills on July 31, after several delays and accidents to machinery consequent upon the long shutdown.

Now that Cheboygan (Mich.) parties are interested in the erection of a plant in that town for the manufacture of jack pine into paper pulp and paper by the Neuman process, a $75,000 plant will probably be erected there.

SOUTHERN STATES.

W. S. Hale, formerly with F. G. Weeks, Skaneateles, N. Y., will soon start up a paper mill at Louisville, Ky., under the style of the Kenton Paper Company.

CANADA.

The mill of the Napanee Pulp and Paper Company, Napanee Mills, Ont., will start up soon on the manufacture of wall paper.

It is reported that work has begun on the new pulp mill at Chatham, N. B.

The Keewatin Power Company has a fine water power at Tunnel Island, Keewatin, Winnipeg. It is on the Winnipeg River, near the Lake of the Woods. This location has been recommended as a good one for pulp and paper mills.

General Notes.

The plant of O. H. Flagg, publisher, Buffalo, Wyo., has been damaged by flood.

The Niagara Paper Mills, Lockport, N. Y., are now manufacturing colored manilla papers and specialties. Some of the colors are exceptionally fine.

Long grate bars make hard work for the fireman, and he cannot always keep the back part of the furnace in good order. A short, wide furnace is the best.

Foreign executions for $8,900 have been issued against the B. F. Wade Company, printer, Toledo, Ohio. The company was incorporated in 1881 with a capital stock of $60,000.

Taking effect July 1, 1895, days of grace are abolished in Illinois, and the rights of the lawful holders of promissory notes payable in money, and the liability of all parties to or upon said notes shall be the same as that of like parties to inland bills of exchange, according to the custom of merchants. This last makes the indorser's liability equal with that of the principal.

The Secret Service of the Treasury has discovered in circulation in the West a new counterfeit $10 national bank note of the First National Bank of Detroit, Mich. The notes are photographic productions of brown-backs, series of 1882, printed on two pieces of paper pasted together, red silk threads placed between. The numbering and seals have been colored by brush. The officials say: "The character of the notes should be determined by their tints rather than by the lines in the engraving, as they are photographs of genuine work."

In last week's issue of THE JOURNAL an illustration was given of a group of bleach packers, showing the garb in which they are attired for protection while engaged in that occupation. It was omitted to state that it was from a cut made from a photograph loaned by Bowman, Thompson & Co., whose advertisement appears in another column, and that it represents several packers who put up the "Rudder" brand of bleaching powder in their works, the Lostock Alkali Works, at Norwich, England.

Prof. Alexander Mitscherlich has established works in Germany for the manufacture of paper makers' size from animal gelatine in combination with the tannin and closely allied bodies in the waste sulphite liquors, the size being sold in a concentrated condition. The size itself is of a yellow fluid, of a neutral reaction, and can be diluted in any proportion with water. The percentage of sizing ingredient corresponds to its specific gravity. For every increase in specific gravity of 0.004 the percentage of size increases 1.0 per cent. When a diluted solution of this size is treated with a solution of alum or sulphate of alumina, a white flocculent precipitate of a cheese-like character is thrown down, which is soluble in alkaline solutions, and especially in solutions of soda. When, therefore, the size is precipitated in the beating engine with alum, as in resin sizing, it coats the fibres, binding them together, and, owing to its adhesive nature, attracts and holds fast the loading material.

The Goulds Manufacturing Company, Seneca Falls, N. Y., reports the following sales of power pumps: Archibald Rogers, Hyde-Park-on-Hudson, N. Y., one 2½x4 inch triplex pump for water supply; Capital Electric Light, Motor and Gas Company, Boise City, Idaho, one 1¾x2½ inch triplex pump for water supply; F. S. Blackall, New York, one 1¾x2½ inch triplex pump for water supply; N. O. Railway and Mill Supply Company, New Orleans, La., one 5x6 inch triplex pump, operated by an electric motor direct geared, all mounted on one bed plate; Hendricks Manufacturing Company, Detroit, Mich., one 5x8 inch triplex pump for pumping calcium brine; Nahum Perry & Co., Attleboro, Mass., one 7x8 inch triplex pump for water supply; Thorndike Manufacturing Company, Thorndike, Mass., one 4x6 inch pump for water supply; Tide Water Oil Company, Bayonne, N. J., eight 4x6 inch triplex pumps for water supply and other pumping operations of refinery work; Nairn Linoleum Company, Leward, N. J., one 4x4 inch triplex pump for water supply; Goodell & Co., Antrim, N. H., one 1¾x2½ inch triplex pump for pumping feed water; S. W. Luitweiler, Los Angeles, Cal., one 6½x8 inch triplex pump for water supply; Hourd Iron Works, Buffalo, N. Y., one 8x8 inch triplex pump for water supply. The company also reports that it has sold to the city of Memphis, Mo., an 8x10 inch waterworks pump having a capacity of 375,000 gallons a day, and to the city of Oregon, Ill., a 10x12 inch triplex waterworks pump having a capacity of 750,000 gallons a day, and to a mill at Rome, Ga., a triplex pump for waterworks having a capacity of 375,000 gallons a day; this pump is to be used to supply water to Linsdale, Ga.

Personals.

K. B. Fullerton, of the Manufacturers' Paper Company, on Thursday started for a pleasure trip to Nova Scotia.

Major J. Fred. Ackerman, of Perkins, Goodwin & Co., who has been laid up for about a week with a severe attack of erysipelas, is again able to be at business.

Fred B. Chase, of North & Chase, New York, who had a disagreement with his bicycle, and who in the ensuing discussion broke two of his ribs, is again out and at business.

Accidents.

Elwood F. Butler, head engineer of the Niagara Falls Paper Mill, and Timothy F. Sweeney, machinist, were drowned through the capsizing of their rowboat in a squall on the river near Grass Island on August 4.

In Town.

A. N. Burbank, W. A. Russell and Mr. Tyler, Boston, Mass.; G. W. Russell, Lawrence, Mass.; F. L. Stevens, North Hoosick, N. Y.; C. H. Southworth, South Hadley Falls, Mass.; W. H. Pusey, Windsor Locks, Conn.; W. D. Woodruff, Merritton, Ont.

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"Best and Most Economical Made."

The Longest Runs

are always made with the "Hamilton." Once accustomed to its use, you will buy no other. Prices as low as inferior makes are sold at.

In ordering mention kind of stock used, quality of paper made and speed of machine.

Shuler & Benninghofen, Hamilton, O.

Ventilating Fans, Blowers and Engines, Paper Dryers and Heating Apparatus.

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Jordan & Beating Engines.

Iron or Wood Tubs, Laid or Steel Bars and Knives. Bed Plates and Jordan Fillings of every description a specialty. Correspondence solicited.

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HOLLINGSWORTH & WHITNEY CO.,

MANUFACTURERS OF ALL GRADES OF

Manilla Papers AND Pure Fibres.

PROPRIETORS OF

TACONNET PAPER MILLS, WINSLOW, ME.....Product. 40 tons Manilla Paper daily.
AROOSTOOK MILLS, GARDINER, ME.....Product: 8 tons No. 1 Manilla daily.
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Boston Office:
44 FEDERAL STREET.

New York Office:
Mutual Reserve Building, 309 Broadway, cor. Duane St.

Failures.

John R. Davis, stationer, &c., Belmont, Ohio, has been closed out on chattel mortgages.

The H. Sellschopp Printing and Publishing Company, Chicago, Ill., has made an assignment.

The actual assets of the Metropolitan Wall Paper Company, New York, are said to be $4,000, and the liabilities $4,500.

John C. Doolan, dealer in paper stock, Springfield, Mass., is offering to settle with his creditors at 20 cents on the dollar.

Executions amounting to $1,562.60 have been issued against J. B. Patterson, wall paper jobber, 39 North Seventh street, Philadelphia, Pa. Liabilities, about $5,000; assets not sufficient to satisfy these executions.

The sheriff on Wednesday received an execution for $15,930 against Winters' Art Litho Company, of Springfield, Ohio, in favor of Henry W. Guernsey on claim for services of Wm. J. Hynes, as selling agent, and notes of the company.

Deputy Sheriff Lipsky has taken charge of the place of business of Wm. N. Swett, publisher of books and ladies' stamping patterns at No. 33 Union square, New York, on executions for $840 in favor of Willoughby I. Wood. Mr. Swett was formerly in business at Lynn, Mass., and began here four years ago. At his office it was said that he was on the road in the Eastern States.

Albert G. Bushnell, doing business in novelties, printing and photo-lithographing, at 111 Nassau street, has made an assignment to Vincent A. Ryan, without preference. He has been in business eighteen years. He states that the failure is the result of losses sustained by the burning of his factory in Massachusetts, in February, 1893, and the financial panic of that year, which has since depressed his business. He kept putting in money to keep the business going, but found at last that he could not stand the strain and he decided to make an assignment. The liabilities are considerably less than $10,000, and the creditors appear to be kindly disposed toward him.

Fires.

Joseph Kubler, publisher, Custer, S. Dak., has had a loss by fire.

C. B. Ramsey, printer, Central Lake, Mich., was burned out on August 2.

E. Murphy, dealer in wall paper, Burlington, Ia., was damaged by fire on July 2.

R. Leckie, dealer in wall paper, Winnipeg, Man., was damaged by fire to the extent of $1,500 on July 14.

The factory of the Vandebogart Paper Box Company, Binghamton, N. Y., was burned on July 25. Loss, $9,000; insurance, $5,000.

The factory of the Paper Cutter Company, Richford, N. Y., was burned on July 21, Insurance, $6,000. The business will be continued.

The paper box factory of George Franke, Nos. 112 and 114 South Eutaw street, Baltimore, Md., was damaged $70,000 by fire and water on August 8. Fire of unknown origin broke out in the sixth floor about 6 o'clock. The firemen deluged the building and the finished stock on the floors below was ruined. The insurance is about $50,000.

Obituary.

Louis Ennecker, lithographer, Rochester, N. Y., died on July 29, aged seventy-seven years.

Arthur Morgan, blank book manufacturer, Brooklyn, N. Y., died on July 30 at the age of seventy-six.

The News Combination.

The makers of news paper who are engaged in getting together on a common footing held a meeting in this city during the early part of the week, and on Thursday moved their base of operations to Boston, where they were in session yesterday. The formation of the new corporation is making headway, and as soon as certain lawyers, who are now away on vacation, return to town the legal portion of the work will be turned over to them. It has not yet been decided whether to incorporate under the laws of New York or New Jersey, but the probabilities are that it will be the former State.

All news mills have not been invited to come in, and of those who were invited all have not been accepted, several having been rejected. The names of the companies which are reported to be included in the combination are as follows: Fall Mountain Paper Company, Glens Falls Paper Mills Company, Hudson River Pulp and Paper Company, Niagara Falls Paper Company, Jay Paper Manufacturing Company, Otis Falls Pulp Company, Rumford Falls Paper Company, Crocker, Burbank & Co., Haverhill Paper Company, Montague Paper Company, Wilder & Co., Glen Manufacturing Company, Taggart's Paper Company, Herkimer Paper Company, Lake George Paper Company, Ticonderoga Pulp and Paper Company, Ontario Paper Company, Remington Paper Company, Remington & Son Company, Winnepiseogee Paper Company and Russell Paper Company.

The business end of the new company has been pretty well settled, and the work on the appraisal, &c., of mills, water rights, timber lands, &c., is about done.

It is said that timber lands and pulp mills are to be paid for in cash or bonds, whichever is desired, while paper mill plants are to be paid for in stock only.

It is not intended to advance prices, and 2 cents f. o. b. at mill is to be the figure at which the product is to be sold, customers being supplied from the nearest mill. If a customer desires paper from any special mill he will have to pay the excess of freight from the specified mill over and above the nearest mill of the company.

As to what is to be done with dealers no definite plan has yet been formulated, although it is stated that no dealers will be injured, and that they will be allowed to keep their trade without interference. It is expected that the new company will begin business on January 1, 1896.

Loose Fitting Pulleys.

The best lubricating invention that I have used in the hub of a loose pulley is a brass bushing, with oil chamber and narrow slots filled with felting, so that the oil will ooze through slowly but surely. I generally put in three slots, each one nearly as long as the oil chamber, and of such a width that one thickness of hat felting will fill it. To close the oil hole I put in a screw plug. In my practice I have found that this arrangement, by filling the oil chamber once a week, gives general satisfaction.

The hub of the pulley must be made especially for such a bushing, because its diammeter must be greater than usual. Driving the bushing in with a heavy hammer constitutes a sufficient fastening. I have generally made the slots on a milling machine, but they may be made with a planer tool or even a chisel. It is likely that this bushing was patented once, but I used it in 1875 and it was no new thing then. The trouble with it is its cost, so that in these days of sharp competition manufacturers of special machines cannot afford to furnish it for nothing. Again, this bushing may be doomed to failure by the manner of fitting it up. Packing the slots so tight that enough oil cannot get through will do it; or making so close a fit of shaft and bushing that the least heating of the shaft will expand it enough to make it bind in the brass, may condemn the arrangement in the estimation of the man who judges solely by results.

It may be argued that heat will expand and enlarge the opening in the bushing and hub of the pulley, as well as it enlarges the shaft. Yes, that is true; the same degree of heat in each would expand each alike. But that part of the shaft which is covered by the hub and bushing of the pulley is excluded from the outer atmosphere, is closely confined, while the pulley hub by its revolutions is kept cool by a breeze. This closeness of fit is very often responsible for the beginning of trouble. There should be room enough for a slight expansion of the shaft and room for a film of oil, just as there should be room for oil in a journal box. In olden times, when babbitt metal was not in such general use as it is now, a common cast iron journal box taught me a lesson about oil and close fits.

The shaft was overhead, with a direct downpull of belt, and the box would heat in spite of all the oil I could pour into the oil hole. I took the cap off time and again to make sure that the oil hole and channel were clear. The journal was not cut at all, but was smooth and of burnished brightness. Finally, in order to do something, I lifted the shaft out of place and found the bottom of the box perfectly dry, not a particle of oil in it, but a smooth, burnished surface, similar to the surface of a well-kept engine cylinder. The edge of the box had been fitted down to the shaft and scraped the oil off clean. I filed and scraped the sides of the box to make room for the oil to get in, and had no further trouble with that journal box—I had made a loose fit of it.—*J. F. Masten, in The Woodworker.*

Cast iron guides for an engine with an all cast iron cross head are found to be durable, provided they are always thoroughly oiled, but they require more attention than where the cross head is lined with babbitt metal.

Newly packed joints should be carefully watched, and as soon as they are thoroughly warmed up, and before pressure is put upon them, the nuts should be tightened again, as some kinds of packing become soft under the action of heat.

Overhauling Paper Mill Engines.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

The millwright or engineer has frequently to take down cylinder heads or steam chest governors when repairing damages, adjusting valves, &c. Often he finds that the packing or gasket placed between the surfaces has united so firmly with one or both of the metallic surfaces that it is hard to get them apart, and in putting together again a great deal of time and labor must be expended in cleaning the surfaces to receive a new gasket. Some engine builders so construct their engines that gaskets are not necessary. The joints are ground to a fit, and need only be oiled before belting together. Other engines require a single thickness of oiled paper between the two surfaces; in the engines requiring a rubber gasket or similar packing, it is a good plan to first clean the metallic surfaces thoroughly, then rub them with pulverized soapstone or plumbago. The packing should also be thoroughly rubbed with the same material. When this is done the joint can be broken at will and the gasket will remain uninjured, and be all right to go back again with the certainty that it will not leak steam. In doing this kind of engine work care should be taken that a kind of packing is selected which will not dissolve in oil, particularly under the influence of heat. If doubts are entertained whether a certain packing will stand in this respect, put it into a vessel of oil and turn on steam, leaving it there for several hours. Upon examination it can be quickly determined whether the packing is safe to use or not.

Paper mill engines run so nearly continuously that they are subject to severe wear unknown in stationary engines operated only ten hours per day. The paper mill engine should be frequently inspected to see that the piston does not leak steam. Great loss is occasioned when any steam under boiler pressure escapes past the piston without doing useful work. Not only is so much work wasted direct, but the expansion of the quantity contained in the cylinder is affected to such a degree that considerable less power is obtained from the expansion of a given quantity of steam than is the case when the piston fits perfectly tight.

Care should be taken in the paper mill engine to see that the regulating apparatus is in fine condition. Nothing injures the quality of a sheet of paper more than uneven speed. Let the engine run too fast and then too slow and the effect of the speed fluctuations can be easily traced in the sheet of paper. An engine with a light fly-wheel gives a good deal of trouble in this manner. When working at its maximum load an engine with a light fly-wheel does not revolve at an even ratio of speed. During two portions of the revolution it is running fast and at two other portions of the revolution it runs slow. The effect of this fluctuation is to cause waves in a sheet of paper, lowering not only the composition of the paper, but its weight also. A light fly-wheel should be replaced by a heavy one, or, provided other conditions are favorable, a mass of metal can be bolted to the rim to increase the weight to the point desired.

The paper mill engine should have ample steam supply of very dry steam. There should be no small connections in the pipe to cause wire drawing or any other reduction of pressure. The regulations should be done as close to the cylinder as possible. If done in the cylinder the economy is greater than when the regulation is done in any other way. Only the Corliss and similar device of engine regulate in this manner; the slide valve engine is wasteful, because it is usually fitted with a throttle governor, which reduces the pressure in the steam pipe at a point some distance from the cylinder. Unless dry steam is supplied the highest degree of economy cannot be obtained. If the boiler capacity is limited a separator should be placed in the steam pipe to extract whatever water may be entrained and passed over with the steam supply.

The steam engine is essentially a heat engine. When water is carried over with the steam not only is there danger of accident from mechanical reasons, but there is a loss of heat by a portion being carried over with the water which is mixed with the steam. Adequate lubrication must be supplied to the engine if the highest degree of efficiency is to be obtained. It is nothing unusual for from 10 to 20 per cent. of the power of an engine to be consumed in internal friction; probably through lack of proper lubrication. Not only is there a loss of power from running with too little oil, but there is damage mechanically when the several parts run dry.

The engine should also be tested frequently to see that each part is aligned properly. A nicely adjusted countershaft fitted with belts and pulleys is found to consume 10 per cent. of the power transmitted through it. From this the amount of power consumed internally in an engine when the conditions are not perfect can be at least roughly estimated.

The paper mill engine should be kept clean. It should have a room to itself, with no other machinery laid therein. Dirt and grit wear out engines very fast, and the life of a machine which should last twenty-five years may be shortened to a mere fraction of that time if dirt is allowed access to the moving parts. Keep the paper mill engine clean; box it up in a room by itself; give the engineer what he asks for, and there will be no trouble in keeping the engine in a state of high efficiency.

Principal and Agent.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

The scope of individual action diminishes and the interdependence of mankind increases as the field of commercial operations enlarges; so that while in primitive communities one could buy, make or sell without the intervention of middlemen, it now requires many men and many minds to complete some of the simplest affairs of manufacturing and merchandising. This has given rise to many legal complications, which in manufacturing and transportation have been termed in law the "Rights and Liabilities of Master and Servant," and in commercial pursuits those of "Principal and Agent." In the following article attention will be called to only one branch of the latter subject:

It was long ago settled that a principal is liable to third parties for whatever the agent does or says; whatever contracts, representations or admissions he makes; whatever negligence he is guilty of, and whatever fraud or wrong he commits, provided the agent acts within the scope of his apparent authority and provided a liability would attach to the principal if he was in the place of the agent. The important question therefore is: What is the apparent scope of authority?

The principal is bound by all acts of his agent within the scope of the authority which he held him out to the world to possess, although he may have given him more limited private instructions, unknown to the persons dealing with him. This is founded on the doctrine that where one of two persons must suffer by the act of a third person, he who has held that person out as worthy of trust and confidence, and having authority in that matter, shall be bound by it. Where an agency is special or particular, and the principal has not, by his conduct or otherwise, extended the authority, the measure of the authority is the same in the case of the principal and third parties, and the principal and the agent; but where the principal, by his conduct or otherwise, extended the authority he will be liable to third persons, although it may not affect his relations to the agent.

When the agent contracts in his own name, disclosing the principal at the same time, either of them may be sued on the contract. This alternative liability continues until the contracting party elects to accept one of the two as his debtor. Where the third party has sued either of them to judgment it is a conclusion of law that he has made his election. It is immaterial whether such election has or has not been fruitless. Where he has not sued to judgment the question of whether his acts have amounted to an election is a question for the jury under instruction from the court.

Where the agent exceeds his authority the principal will not, as a rule, be held liable, unless by his words or conduct the principal has caused another to believe that the agent has powers to that extent, in which case he cannot show less authority in the agent. This rule, however, will have no operation where the third party has notice that the agent is acting in violation of his instructions. Of course such acts of an agent may be ratified, either expressly or by implication, provided they are not illegal, that is, contrary to law.

Where an agent contracts in his own name, on behalf of an undiscovered principal, such contract may be enforced against the latter subsequently, in the same manner and with the same effect as if he had been named as a party to the contract; but where the credit is given solely to the agent, by charging goods to him, or accepting a note from him for the price, after having knowledge of the principal, his condition and character. The court, however, in the case of the Bank of North America *v.* Hooper (5 Gray, 567) refused to allow a recovery against one man on a note made by another, on proof that the latter was acting as his agent, and said that the rule that a principal may be liable as a privy, on a contract in which his name does not appear as a party, does not embrace negotiable instruments. This will apply also to blils of exchange and instruments under seal.

A principal is answerable for the fraudulent act of his agent performed within the scope of his authority where he has received a benefit from it, or where the fraud was committed by the agent in the course of the business of the principal and for his benefit, for a false representation made by an agent must have the same effect as if made by the principal himself. A corporation carrying on business for profit is equally liable for the fraud of its agents the same as any other principal.

A principal is liable to third parties for results due to the agent's acts and negligence when he is acting within the scope of his authority; but if he is not acting within the real or apparent scope of his employment the principal is not liable. An agent is acting within the scope of his authority whenever he does anything necessary for fulfilling the duty which he has to perform. This rule applies more particularly in practice to the acts of officers and agents of corporations, especially those of banks, where the acceptance of checks, extending credit for overdrafts, &c., in the interest of private deals of such officials, are acted upon by others as being done in an official capacity, and afterward repudiated by the corporation.

Heating Soldering Coppers by Electricity.

Whenever there is an incandescent light plant in the mill, soldering coppers may be easily heated by simply attaching one wire to the shank of the copper, the other wire to a bit of carbon; use an arc light carbon or a piece of gas coke; then bring the coke and soldering copper in contact and separate them a small fraction of an inch. An electric arc will at once spring across from one to the other, and it will be maintained as long as the distance between them is not too great. The copper will be heated in a very few moments, as the electric arc is intensely hot. There are several precautions to be taken, however, in electrically heating soldering irons. If the wires were connected as above probably all the fuses in the circuit would be blown out as quick as contact was made between the copper and the carbon. The ratio of current would be very great under these conditions.

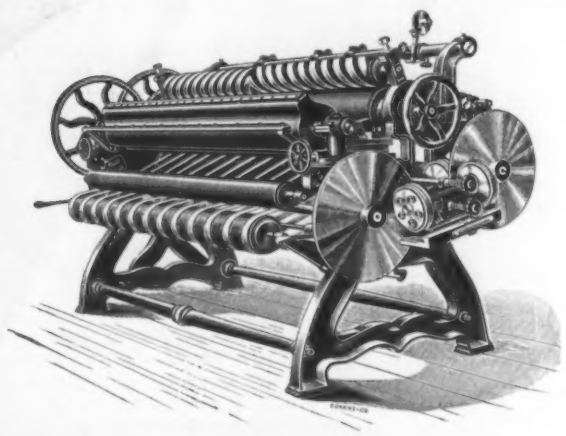
To prevent anything of this kind put an incandescent lamp somewhere in the circuit in series with the copper and carbon. Probably current enough to heat the copper cannot pass through one lamp; therefore put another lamp in parallel with the first. For very large coppers additional lamps will be necessary. One mechanic who does considerable heating in this manner has seven incandescent lamps arranged side by side parallel with each other. He can regulate the current very nicely by turning on or off as many of the lamps as may be necessary. He gets about three-tenths ampere for each lamp in the circuit.—*Boston Journal of Commerce.*

Heat and Fire.

There is a good deal of misunderstanding as to the degree of heat thrown off by the incandescent lamp. An officer of the Austrian army has shown that an electric lamp of 16 candle power develops a maximum temperature of 94° C., and a lamp of 25 candle power a temperature of 101° C. Two lamps placed in a cavity of wood developed a temperature of 215° C., decomposed cannon powder and other explosives, but without detonation. The cavity was filled with water, which was brought to the boiling point in about fifteen minutes.

The cumulative effect of heat is little understood by the majority of people. Many persons cannot be brought to realize, even in the face of almost daily proof, that a steam pipe can cause a fire. They argue: "You can't set wood on fire under about 400° Fahr., and water boils at 212°, so how can you set fire when you lack at least 75° or 100° of heat in your coils?" The solution of this little problem is that it is not wood that is set on fire; it is partially carbonized wood, which does not require, after arriving at that condition by a long process of daily heating, as high a heat as it formerly needed to break into flames. It is the same with paper and many other materials.

It is dangerous to inclose the bulb of an electric lamp in any fabric, even as light as mosquito netting, and by this practice many fires are originated. Experiment has shown that an incandescent lamp globe closely wrapped with paper, so that no air can pass between it and the glass, will cause fire in a very few minutes. Another piece of testimony to the heat thrown off by an electric lamp is given by an electrician who was subject to cold feet. Being unable from this cause to sleep, one bitter winter's night he put two incandescent lamps into his bed and turned on the light. He avers that in a very short time he had as much heat at his disposal as would be given by a brick fresh from the oven.—*Philadelphia Inquirer.*



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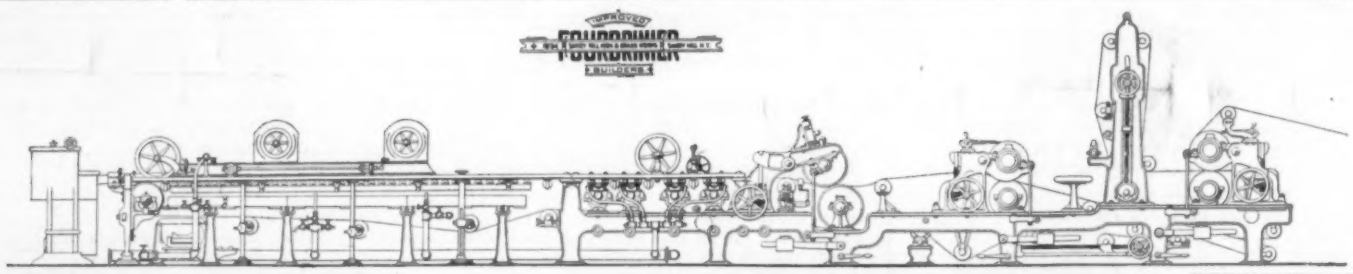

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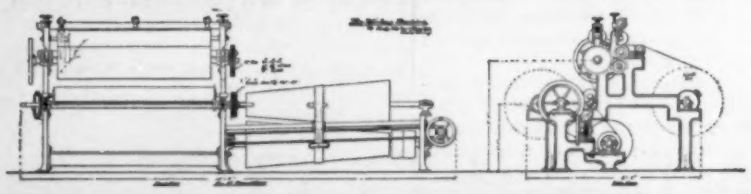

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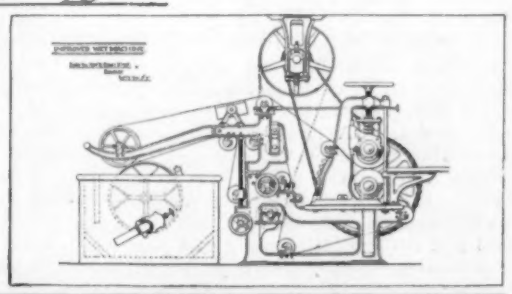

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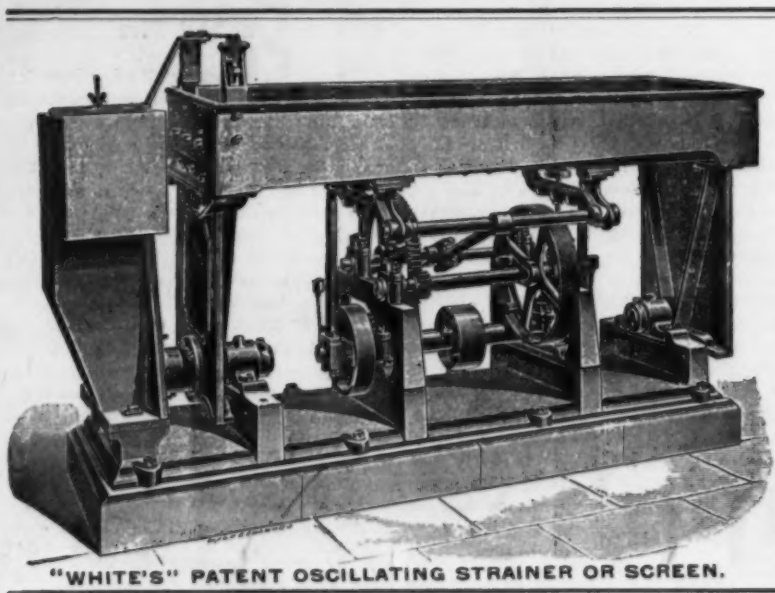

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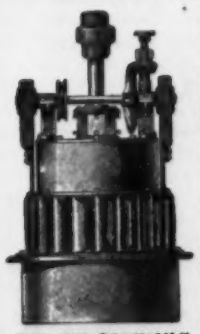

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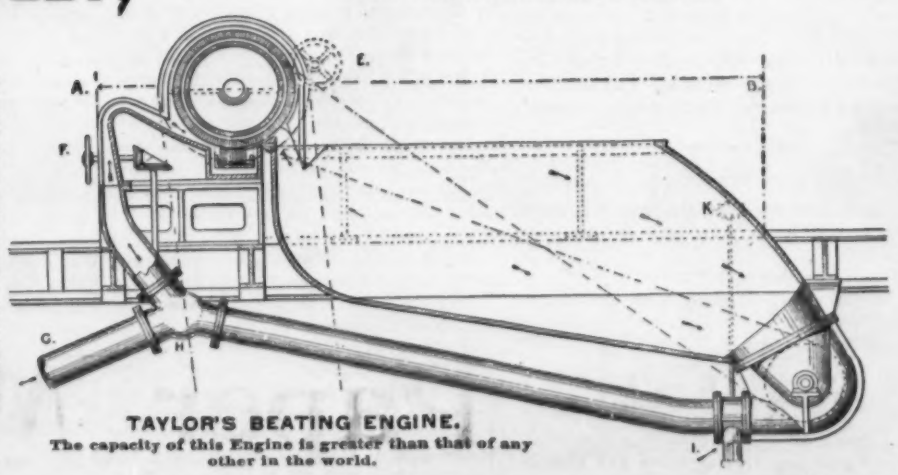

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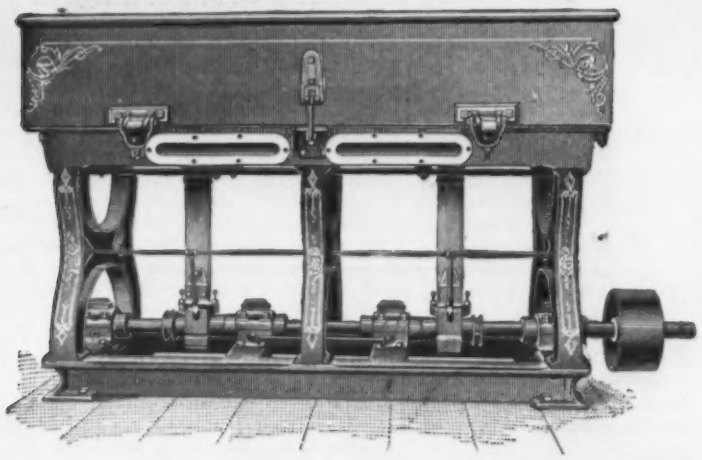

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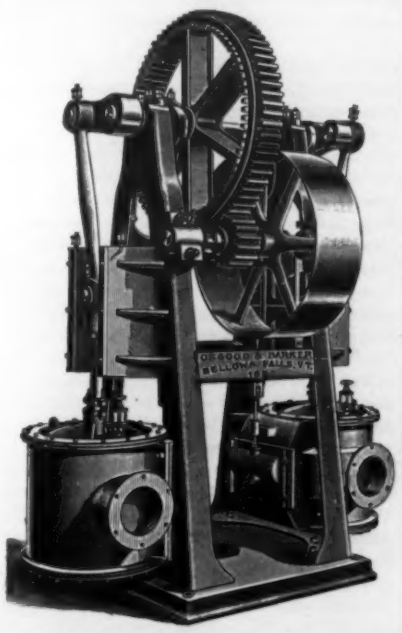

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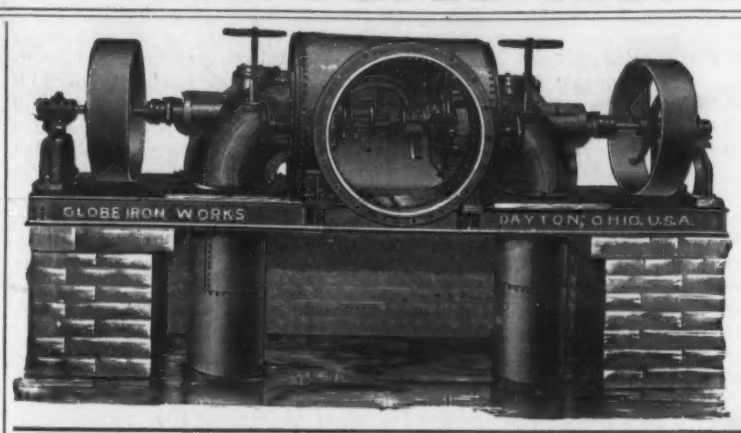

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The originals of these certificates and tests of other sized wheels can be seen at our office.

TEST OF A 45 INCH WHEEL—JULY 9, 1894.

	Head.	Rev. per Min.	Cu. Ft. per Sec.	Horse Power.	Per Cent.
Whole Gate,	16.06	119.17	141.58	205.27	79.76
¾ "	16.42	122.00	127.18	195.19	82.58
½ "	16.78	117.33	112.60	175.74	82.18
¼ "	17.03	111.33	96.12	149.99	79.31
⅛ "	16.86	118.67	82.07	118.40	75.52

TEST OF A 42 INCH WHEEL—JULY 14, 1894.

	Head.	Rev. per Min.	Cu. Ft. per Sec.	Horse Power.	Per Cent.
Whole Gate,	16.33	128.00	134.18	199.56	80.50
¾ "	16.56	134.80	120.85	188.14	83.09
½ "	16.59	129.33	104.85	162.89	82.77
¼ "	17.13	125.25	92.76	142.40	79.21
⅛ "	17.48	121.00	70.80	98.85	70.60

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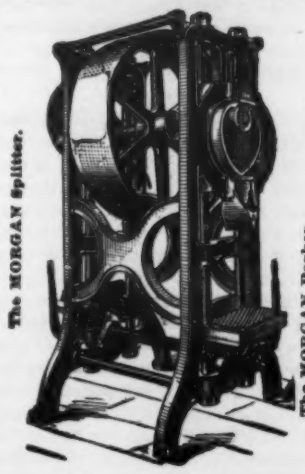
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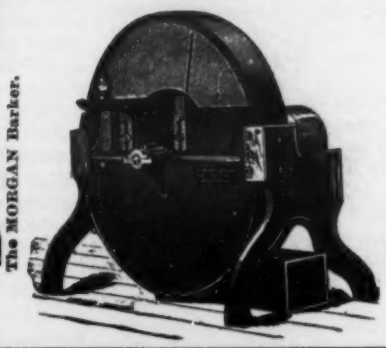
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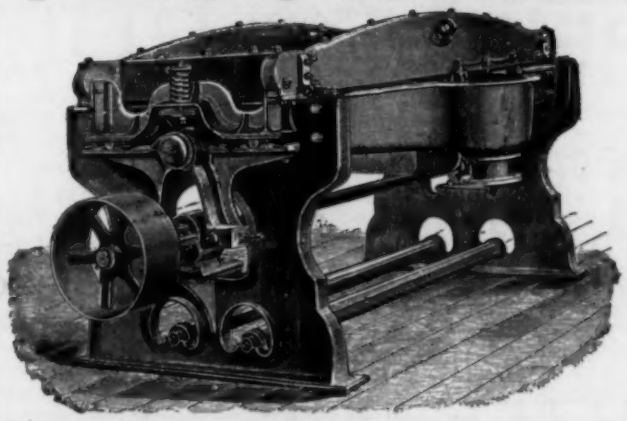

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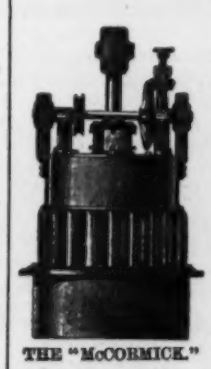
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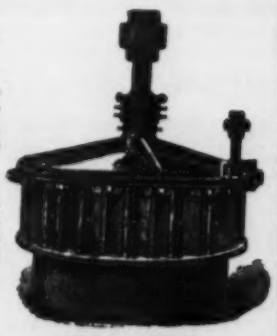
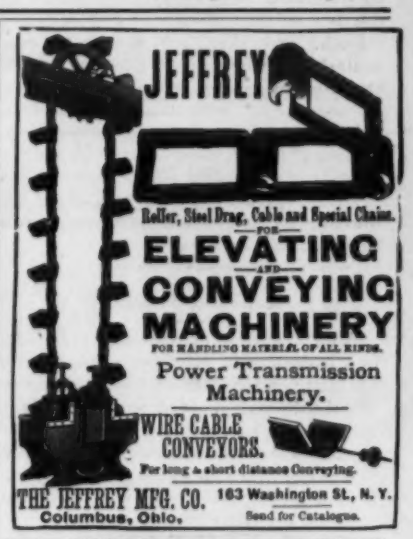

THE "SUCCESS."



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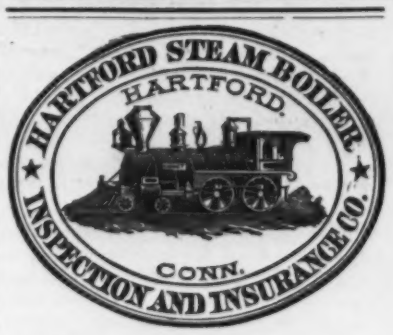

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Metal Corner Box Machine.

The purpose of the machine herewith illustrated is to apply tin binder strips to the corners of boxes as fasteners, and it is claimed that it is superior in every respect to any machine hitherto used for the same object. These points of superiority may be summed up as follows: first, it is automatic; second, it is rapid; third, its work is uniform, and fourth, it is economical.

With other machines the process of fastening the corners of boxes is comparatively slow by reason of the fact that the strips of tin have first to be cut and then applied, while this machine, working automatically, applies the metal from a continuous coil and cuts it off at the will of the operator. This is very important, for it not only does away with changing the strips every moment, but largely increases the output. The coil, which is shown above the machine in the cut, contains 125 feet of metal nine-sixteenths of an inch wide. A boy is shown operating the machine.

METAL EDGE BOX MACHINE.

The operator, holding the two edges to be joined upon a sort of triangle fitting the corner exactly, uses the metal as fed to him by the machine working by steam and belt attachment, and when the required length has been used, cuts it off by the simple movement of his foot operating a lever. This operation presses the strips, which are so punctured as to form small teeth, into the box so that the edges and ends are smooth, and they are absolutely safe against unhooking or pulling out, as is often the case with less perfect workmanship.

This machine will turn out over 4,000 complete boxes per day, and there are instances where as many as 6,000 have been made by a smart workman.

Further particulars may be had by addressing Henry M. Robertson & Co., sole agents, 319 Broadway, New York.

Refining Kaolin.

A new method of refining or separation from kaolin, ochre or similar earths the gritty or other deleterious constituents contained therein, is designed to do it cheaper, more expeditious and more effective than the methods heretofore employed.

The common method of separation consists in mixing the kaolin with water and allowing the gritty matter to settle.

In this new process the earth is dried, at least partially, either by air drying or other means. It is then disintegrated by the use of any well-known disintegrator, such as the double cylinder machine, in which, however, the gritty particles are not ground up, but are merely separated from the earth, which is reduced to a powdered condition therein. The resulting powder is then passed through a combined heater and drier, preferably a steam jacketed cylinder, in which the powder is not only dried, but heated, so that it will not absorb moisture on its way to the screens. From the heater and drier the powder goes to a "scalper," which consists of a rotating cylindrical screen, through which the earth and fine gritty particles pass, while the larger particles of deleterious matters are left therein. From this scalper the powder passes to the sieves, which in the case of kaolin are preferably of very fine bolting cloth, of such fine mesh that the earth will not pass therethrough unless it is perfectly dry.

The heating forms an essential part of the process, as the powder, which is a great absorber of moisture, is thereby prevented from absorbing moisture before it reaches the bolting cloth, through which it would not pass unless perfectly dry, and the earth may be heated before the disintegrating operation for this purpose, if desired, the earth being made up into bricks and dried before disintegrating. The earth may also be separated from the heavier deleterious particles by directing a blast of air upon it and collecting the earth by a dust collector. In either case, if thoroughly dried, a complete separation will be effected, the larger and heavier particles of gritty and other deleterious matters being entirely removed. With the use of bolting cloth it is also found that the surface clays, which seep down and intermingle with and discolor the kaolin, are also removed.

Wire Rope and Its Uses.

In most of the applications of wire rope it practically has the field to itself. No substitute can be used for the elevator rope, the cable of the street railway or the many forms of cableways. In the transmission of power, however, it is different. Here we have numerous systems, each of which has its peculiar advantages and disadvantages, and here wire rope must compete with electricity, compressed air, water under pressure, belts and shafting and all of the other systems that have from time to time been suggested.

In any system of power transmission one of the foremost considerations is that of efficiency. This, together with the considerations of first cost and adaptability, are the features that generally decide as to the system that shall be adopted in any particular case.

As to the first cost of the plant, wire rope has the advantage over all other systems for short distances. This first cost varies greatly from the amount of power to be carried, as well as the distance, a plant to transmit 5 horse power a distance of 300 feet would probably cost about $150, while electrical transmission would cost five times as much. If, however, we were to transmit the power to a distance of 5 miles the wire rope outfit would cost five times as much as the electrical machinery and line. As we increase the amount of power to be transmitted, the wire rope has still greater advantage at the short distance, and at 100 horse power we have advantage over electricity in a ratio of at least 20 to 1. But as the distance increases the cost of plant per horse power increases rapidly and almost in direct proportion to the distance. The cost of the electrical and pneumatic systems do not increase so rapidly with the distance.

We must not, however, forget that the wire rope system has the very great disadvantage of lacking flexibility to a great degree. It is in their flexibility that electricity and compressed air, especially the former, have the great advantage. For distances of less than a mile the first cost of the wire rope installation will be less than that of any other. We will now consider the relative efficiency of the wire rope system. The commercial efficiency of any power transmission is expressed by the ratio of the power available for useful work to the power delivered at the generating station. The sources of loss of power in a rope transmission plant are three in number: (1) the rigidity of the rope, which introduces a very small loss; (2) the resistance of the air to the rope and wheels, which may amount to quite an appreciable loss, and (3) the friction of the journals of the wheel shafts. This last is the greatest source of loss, because of the great pressure on the bearings. This pressure, due to the weight and initial tension of the rope, is often much more than that due to the work performed, so it follows that the efficiency is much higher the more power the rope is transmitting.

While working at the highest suitable power with no intermediate stations an efficiency of 96.2 per cent. has been obtained. About 2 per cent. additional loss will occur at every intermediate station when everything is operating under the best conditions. We see then that for short distances, and where it is merely desired to transmit power between two shafts the rope transmission is exceedingly economical, while for long distances electricity is the best possible agent. When we wish to distribute as well as to transmit a large amount of power, electricity has still further advantages. A wire rope plant will generally cost less than a plant for compressed air, but the latter has the advantage that the air may often be used for other purposes after accomplishing its purpose as a vehicle of power, such as in the ventilation of mines and ships.

Wire rope has become recognized as a very useful means of power transmission, and its use is increasing. While we believe that in many instances it might economically replace belts and shafts now in use, we must admit that its field is limited to special cases or to special conditions. Under these conditions nothing can successfully compete with it in point of first cost or in economy of operation.

There are other special uses of wire rope that we have not touched upon in these papers. We believe, however, that enough has been said to show its advantages under any special circumstances, and to enable anyone familiar with mechanical principles to successfully install and properly care for the rope for whatever purpose it may be used.—*Industrial Record.*

Chimneys.

In every steam plant the chimney is one of the essential features. The proper construction of the chimney for each particular case is a matter that has been too often neglected. Sometimes the chimney is designed more from the artistic than from the engineering standpoint. The same used to be true, although perhaps to a less extent, of the other parts of the power plant. We have all seen engines, built no more than twenty-five years ago, in which the ornamentation and the architectural details seem almost to set aside the real purpose for which the machine was originally built. The same idea, that now seems nothing short of ridiculous, pervaded all departments of our mills and shops. The various parts of our machinery were formed in the most artistic (?) curves, while at present simplicity and utility are almost the only considerations of the machine designer.

The chimney should be designed by an engineer as truly as the engine and boiler. The proper construction of the chimney involves the principles of architecture and a certain amount of artistic skill will not come amiss, but the proper proportioning of the flue is a matter that should be decided by a competent engineer.

The chimney is one of the working elements of the plant, and should be recognized as such. The function of the chimney is to draw the air with its oxygen into the furnace to aid in consuming the fuel. The draft of the chimney should be such that sufficient air may be supplied at all times.

The chimney is not of such ancient origin as might be supposed from its simplicity. The earliest use of what we would call a chimney was in Rochester Castle in the year 1130.

The principles involved in the construction of a chimney are thoroughly discussed in an article by Fred T. Hodson in *Architecture and Building*, from which the following brief extract is taken:

"The philosophy involved in the operation of a chimney depends altogether on the principle that a column of heated air is lighter than a cooler column of like dimensions. This being admitted, it follows that the lighter air will be forced upward by the heavier, just as a body that is lighter than water will be forced to the surface by the action of the heavier body. It is this action, caused by the difference of density, that establishes a current of draft. All other conditions being equal, the draft of a chimney is thus proportioned to its perpendicular height, and of course the difference of temperature within and without the flue. The straighter and taller the shaft, the more powerful will be the ascending current; but there are cases, no matter how straight and how lofty the chimney may be, that will refuse to conduct smoke through its length under certain mysterious conditions. Some causes for chimneys smoking are well known and avoidable, the trouble arising perhaps from positive ill construction, having a narrow part, an ugly bend or a downward portion in their conduit, which their normal draft is not sufficient to overcome. Others smoke because they form the shortest channel by which the air can enter the house to supply the draft of a higher chimney.

"When there are two chimneys in one room, or in rooms adjacent to each other, and the doors and windows are closed in all other rooms, the shorter chimney will draught inwardly to supply the loftier one with a current. Sometimes the best constructed and most wisely designed chimney, with regard to the building in which it is situated, will smoke in consequence of its exit being in the immediate neighborhood of walls, hills or trees, whose situation is such as to create at times strong eddies and cross-currents. In most cases, however, the addition of a few feet or so to the height of the chimney shaft, supposing it to be already above the ridge of the house which it ventilates, will prove more useful than any addition of those curiously contorted and usually non-pneumatic contrivances that are so often planted on top of a smoky chimney to cure it of its 'cussedness.'"

While this refers more to chimneys for other than power purposes, the principles involved in the construction of chimneys are the same to a great extent. In regard to the design and construction of the factory chimney, he says that they "require more architectural skill and scientific knowledge than most practitioners can lay claim to." This is certainly a subject that should receive the careful attention of every engineer when called upon to design a power plant. The external part of the chimney may be constructed as desired, but the internal flue should be properly proportioned for its work.—*Ex.*

Effect of Freezing on Cement Mortars.

An article recently published in *Engineering News* gives the results of a large number of experiments which have been carried out on the effect of freezing on cement mortars. Most of the specimens were tested transversely, but control experiments in tension were also made. In order to reproduce the condition of actual work as closely as possible, the various specimens were caused to set under a pressure corresponding to the average weight of a course of masonry 18 inches deep. These specimens measured 5 inches in length by 1 inch square in cross section. They were tested on a 4 inch span with a central load, and after breaking, the long fragment was broken on a 2½ inch span. Six brands of cement were used, and were mixed with screened sand in various ratios, and then allowed to set at low temperatures. Both salt and fresh water were used in gauging the specimens.

The conclusion arrived at, based on over 6,000 results, is that Portland cement mortar suffers no surface disintegration under any condition of freezing, but that in most cases its strength is reduced, in some cases by as much as 40 per cent. Rosendale cement is disintegrated when exposed to frost when setting, and its cohesion may be entirely destroyed by immersion in water which becomes frozen round it. Salt water prevents this disintegration to a large extent, but seems to have an injurious effect on the strength. The cement below the disintegrated surface is stated to be increased in strength when the Rosendale cement is used. A mixture of a natural rock cement and of Portland cement gave very satisfactory results, as its surface did not disintegrate, and its strength was increased by the freezing. Portland cement is injured less proportionately as the percentage of cement in the specimens is reduced. Lime mortar is ruined by alternate thawing and freezing, but fairly good results can be obtained in the case of brick masonry when the mortar is kept frozen for some time after laying.—*Engineering.*

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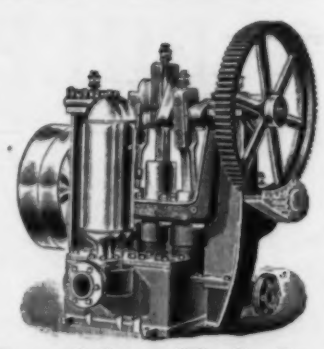

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Preservative Coatings for Iron Work.

By A. H. Sabin.

What I have to say is based upon the preparation of ordinary air-drying coatings, which are used for painting bridges and other structural work, not fine finishes, not what you would call black rubbing japan, but simply preservative coatings.

Permanent preservative coatings for iron belong to two classes: In the first the coating is made hard and firm by a process of baking; in the second, it becomes hard at ordinary temperatures by oxidation or by evaporation of a solvent, or by a combination of both these processes, or in some cases by mere cooling from a heated and fused condition.

The first class consists of enamels and of japans. Enameling may be briefly described as a process of covering a metal with a glaze essentially similar in its constitution and properties to glass, and possessing all the advantages and disadvantages of that substance; the glass is melted by intense heat on the surface of the metal, to which it adheres. The process is rather costly, and the coating thus obtained is very handsome and resists the action of solvents well, but is brittle and easily chipped off. Japans are intermediate between enamels and ordinary varnishes. A properly japanned surface has a power of resistance to solvents approaching that of an enamel, while it greatly surpasses that in the tenacity with which the coating adheres to the metal, allowing the latter to be hammered and bent, and its elasticity is in most cases greater even than that of a varnish. It is also intermediate between a varnished surface and glass in hardness, being harder than gypsum and as hard as marble. As a rule japans are black in color, with a very smooth and apparently polished surface. The black japans are made up of asphalt and linseed oil as a base, mixed with more or less copal resin, usually Kauri, and thinned with turpentine. It is true of them, as of varnishes, that the more linseed oil they contain and the less driers (oxides of lead and manganese) the more durable they are; but in order to get them to bake hard at a comparatively low heat, the proportion of oil is frequently decreased as much as possible and the amount of driers is increased.

When a film of linseed oil is exposed to the air it rapidly hardens by the absorption of oxygen from the air. This process leaves the film full of minute pores; hence this film, while durable, is not a good protection; because it is not continuous. It requires a good many thin coats, because each coat tends to fill up the holes and pores in the coat which is already dry beneath it. The addition of a perfectly neutral substance in the form of an absolutely impalpable powder—such as lampblack—has a tendency to fill these pores, and hence the well-known fact that lampblack and linseed oil make a paint which will last for a generation; but it is excessively slow in drying for the same reason. Varnish resins are mixed with oil for the same and other purposes, and so are the various kinds of asphalt. As asphalt is a substance which consists mainly of carbon, holding a position between mineral oil and bituminous coal, and is very permanent when protected from the air, and as it is, moreover, at moderately high temperatures, a liquid, and dissolves freely in linseed oil and melted resins, it is very well suited for the purpose of hardening and solidifying the mixtures in which it is used. The turpentine is used to dilute the mixture, and is all, or nearly all, lost by evaporation during baking. I see no great objection to using benzine in this way; it is all practically driven off. Benzine hurts the flowing qualities of the varnish tremendously, and turpentine is better in a high-class varnish. Where the work is going to be subjected to great heat, I don't know that benzine does any hurt.

When a piece of metal is dipped in japan, and then baked for several hours in an oven, the hardening, which is usually accomplished slowly at ordinary temperatures, takes place rapidly and more perfectly; the film is kept, during this process, in a semi-liquid condition, and all the pores and inequalities in the coating are obliterated. If there are any minute parts of the surface which were not originally covered by the liquid these are gradually covered by the hot fluid slowly creeping over and in intimate contact with them; and the result is a film, absolutely and continuously adherent to this metal, hard, tough and with a smooth and shiny surface, free from pores or irregularities, and well calculated to resist the atmospheric and other agencies which tend to attack it.

It must be obvious that the resisting powers of such a coating will depend on its composition. The cheaper grades are made with coal tar instead of asphalt, with common resin instead of copal gum, and with benzine instead of turpentine; while a heavy mineral oil sometimes entirely or in part, replaces linseed oil. These may present as good an appearance when new as the very best japans, but are of inferior durability. Asphalt itself is but a generic name applied to mineral substances of various characteristics; and it is important for durability and for resisting power to have the best materials. Japanned iron sign plates, door locks and latches are well known to have resisted rain and dirt and wind for many years; the value of the coating has for many years been well recognized and undisputed, but until recently it has been assumed that it is applicable only to small objects. Now, however, it has been proved that it is applicable to very large work, and that it is an economical coating easily applied, giving uniform and excellent results.

It is perfectly well known to those who are experienced in such matters that the durability of an ordinary oil and gum varnish is greatly increased by baking—is, in fact, increased several times. It is therefore proved that the process of baking is in itself of great value, probably because, as already stated, it insures the intimate adhesion of the covering and the base, the continuity of coating, an absence of porosity and hard glaze surface which resists abrasion. In addition to this is the fact that the process of baking enables the operator to use a coating which is much more durable in itself than one which will dry hard at ordinary temperatures; for practical use it is indispensable that a paint or varnish shall dry hard within one or two days, while such combinations of material as require weeks or months to dry, and which are therefore much less subject to change from atmospheric influences, can be used only in a baking process. These compounds we do, in fact, use for this purpose. It is thus evident that a suitable baking japan, properly applied, is the best known protection for metallic surfaces under all ordinary conditions.—*Industrial Record.*

(To be continued.)

Friction.

It is bewildering to struggle through the figures and tabulated results of experiments on friction. Like the stars, they vary in magnitude and number, and it is with relief that we turn to the statements of a writer like Professor Perry, who says there is a general law in machinery, which is that "friction is proportional to load," and "always tends to resist motion." And again, "the power usefully given out by a machine is a certain fixed fraction of the total power given to the machine, minus the power required to drive that machine when it is unloaded." Speaking of a shaft when transmitting power, he says, "experiment shows that the energy lost in friction for a certain amount of motion increases proportionately with the energy actually transmitted by the shaft." From which it would appear that whether we increase the load or increase the speed there is a proportionate rise in the loss.

The Institute of Mechanical Engineers, in their experiments on the friction of shafting, found that "all the common methods of lubrication were so irregular in their action that the friction of a bearing often varied considerably." That "friction was greatest with a new brass, and diminished as the brass became worn, so as to fit the journal more perfectly." Also that "the friction depends on the quantity and uniformity of distribution of the oil, and may be anything between the oil bath and seizing, according to the perfection or imperfection of the lubrication."

Professor Goodman says: "Out of every ton of fuel consumed for engine purposes some 400 pounds to 800 pounds are wasted in overcoming the friction of the working parts of the motor; and, further, every machine driven by that motor also wastes a large percentage of the remaining power by its own friction. One would not be far short of the mark in saying that from 40 to 80 per cent. of the fuel is consumed in overcoming friction."

From the foregoing strictures it will be seen how well founded are the considerations, from economical and commercial points of view, which incite us to an organized and systematic attack on this "mechanical octopus." It will also be seen how very difficult it is to determine, with accuracy, the loss sustained in the mechanical transmission of power from friction alone. We have found it to vary from 20 to 70 per cent. of the transmitted power, according to the various conditions under which the mechanism was employed.—*Ex.*

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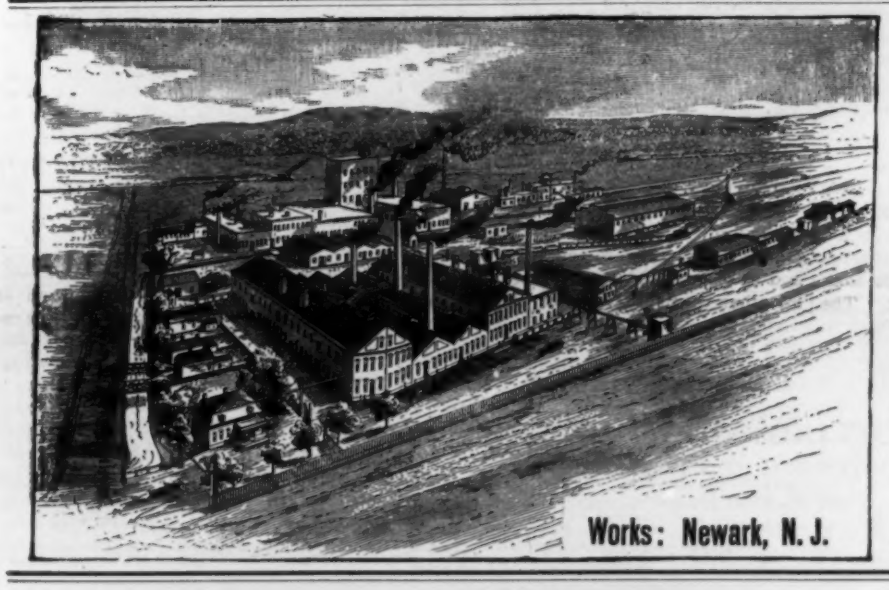

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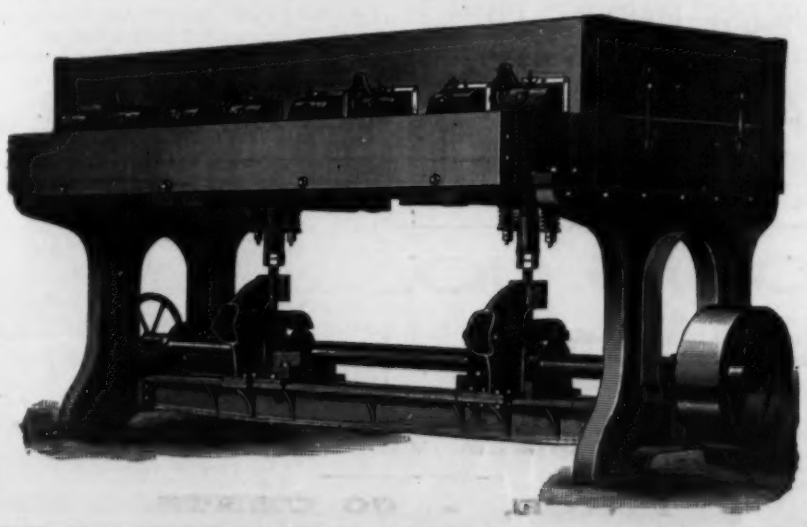

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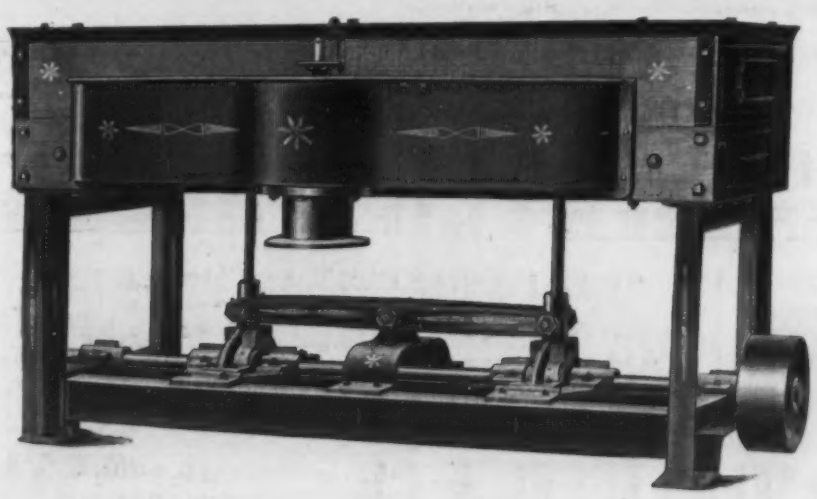

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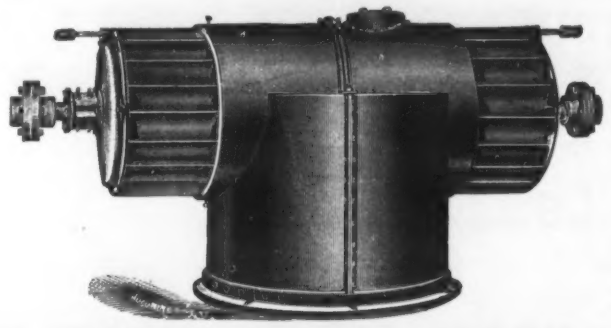

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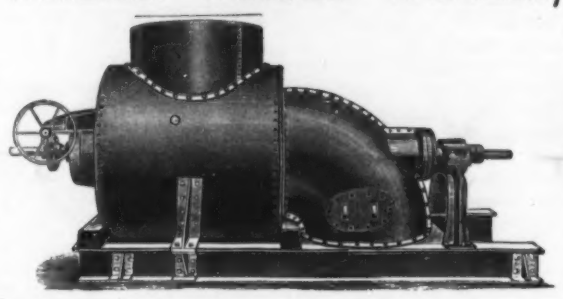

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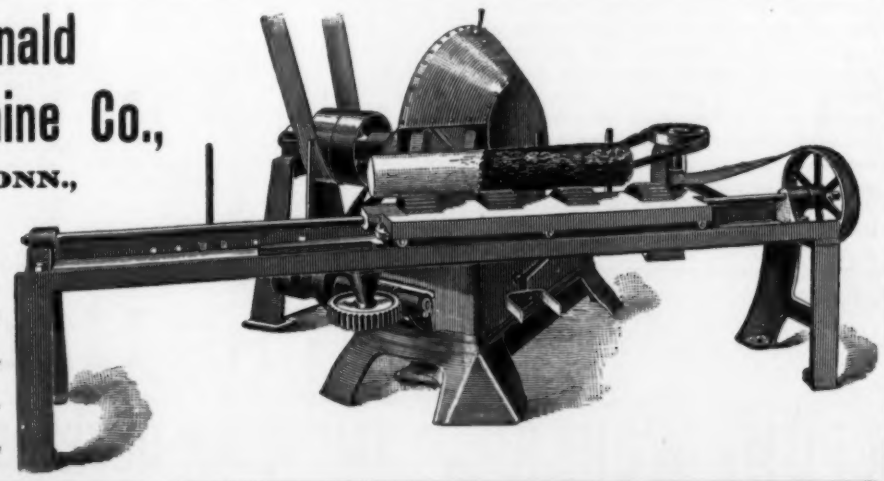

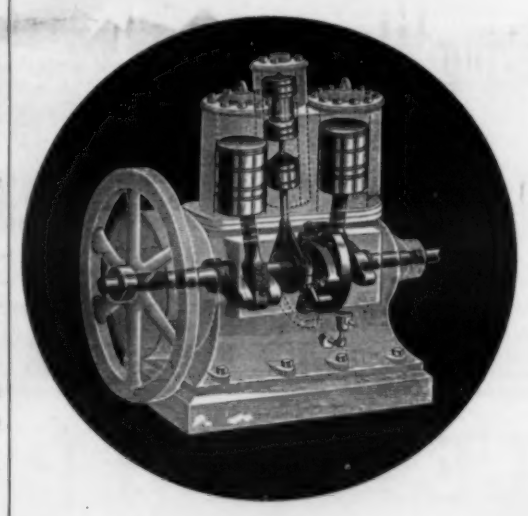

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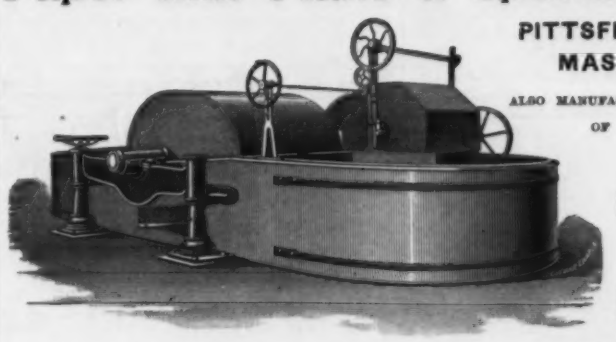

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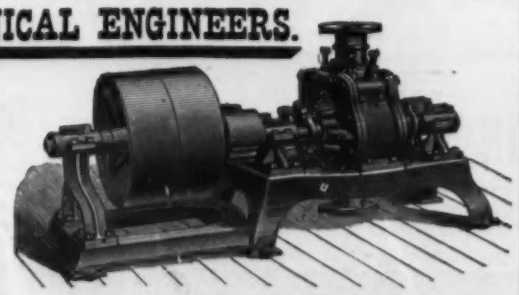

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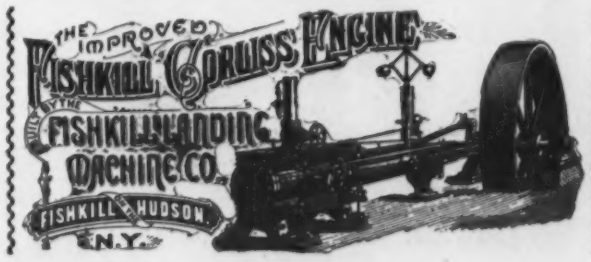

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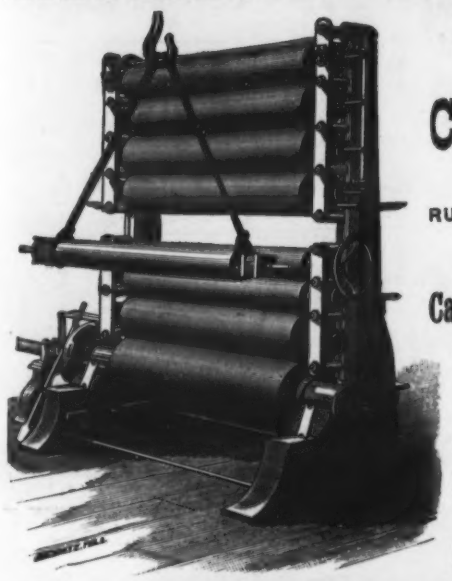

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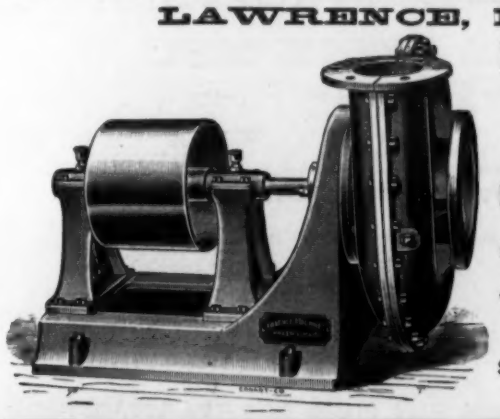

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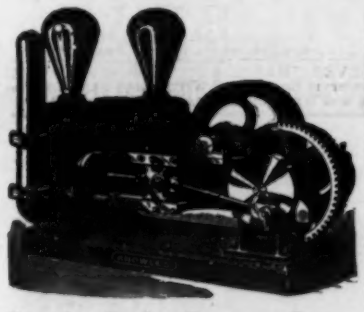

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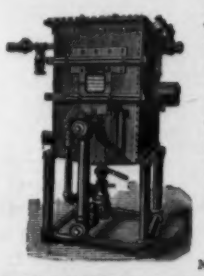

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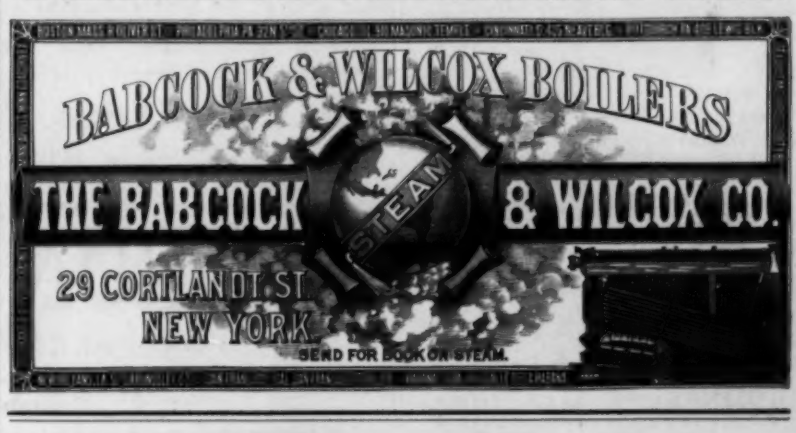

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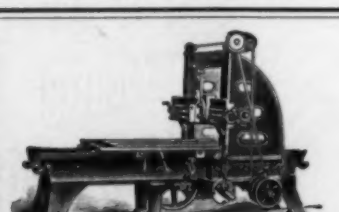

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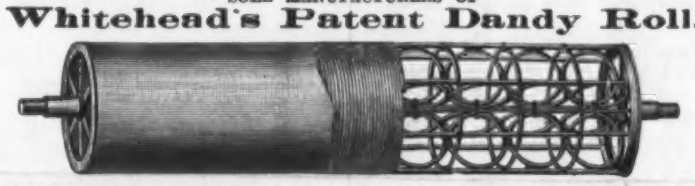

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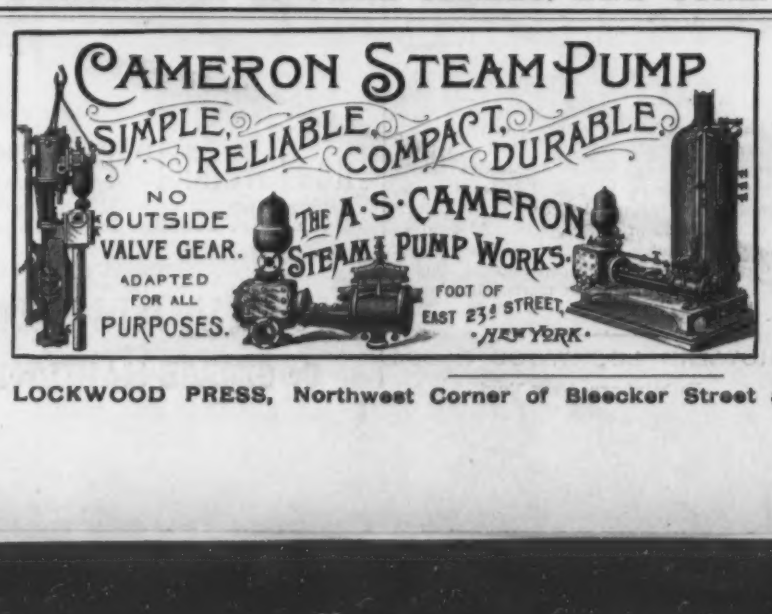
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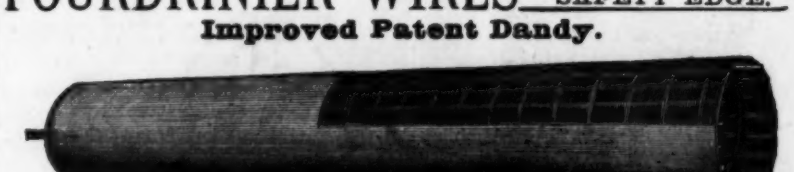

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